Developing a culture of reflection: implications for school improvement

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Becoming more reflective about their practice is an important way for educational leaders to reveal their assumptions and to make better-informed decisions. This article expands our understanding of the power of reflection by demonstrating the principles and practices associated with building a reflective culture that facilitates school improvement. Using a conceptual model of reflection, the authors describe a host of practical reflective strategies focusing on student learning, team development, and school-wide collaboration.

Since the publication of *A nation at risk* in 1983, confidence in schools, administrators, and teachers has decreased while accountability for student performance has increased. Serious questions about the nation’s ability to compete at the international level have been raised, often criticizing schools for not comparing favorably with the achievement levels of students from other countries. To stimulate educational renewal, many state and national organizations have established standards and performance goals for students, resulting in the formulation of strategic plans for school improvement at the local levels.

The recent ‘No Child Left Behind Act’ underscores the current pressures on schools to raise student performance and be held accountable for these student outcomes. As the ante for accountability has risen, so too have performance expectations for school leaders and teachers. Ask school principals how their roles have changed in the last decade and they will immediately mention the increased complexity and external pressures that confront them. Today’s school leaders have been forced to become adroit at ‘multi-tasking’, especially in performing their educational, managerial, and political leadership roles. Unfortunately, as the demand for accountability has risen, school leaders and teachers have been forced to become far more reactive to external demands, rather than taking a thoughtful, proactive approach to
school renewal. Despite these demands on schools and the rapid pace of change, we contend that effective school improvement will only occur in a culture where reflection prevails for students, teachers, and administrators.

Therefore, the purpose of this article is to examine how school leaders can reinforce and infuse reflection throughout the school culture, especially in their desire to implement meaningful school improvement. Many of the ideas we present are based on our experience working with educators, particularly principals and school-based teams. We begin by defining and showing the relationships between reflection, culture, and school improvement. To bring practical reality to our ideas, we will describe how a culture of improvement can become embedded in the everyday actions of students, work teams, and the collaborative efforts of all staff members. We conclude by identifying important implications for leaders as they build reflective cultures for school improvement.

The impact of reflection on school culture and improvement

In building our case for how a reflective culture for school improvement can thrive, we begin by defining the concepts of reflection, school improvement, and culture. In addition, we will discuss how these concepts are interrelated and can mutually reinforce one another.

Reflection

Definition. Reflective practice has become a popular concept in the late 1900s and into the twenty-first century, in part prompted by the work of Donald Schön (1983, 1987); however, its philosophical and historical roots trace back to earlier times. For instance, the ‘Socratic method’, a form of reflective questioning, was used by Socrates to develop the abilities of one his most talented students, Plato. Similarly, the Greek philosopher Sophocles was a proponent of thoughtful reflection by carefully observing and describing human performance. Reflection also has drawn the attention of educators, most notably with the early descriptions by John Dewey (1933), who purported that reflection is the process of obtaining evidence to support our knowledge and beliefs and allows individuals to make conclusions about the future.

Various descriptions of the reflective process have surfaced. Brookfield (1987), for example, asserts that critical reflection consists of five phases: (1) experiencing a trigger event; (2) appraising the event; (3) exploring possible solutions; (4) developing an alternative perspective; and (5) integrating information to make a conclusion or decision. Furthermore, Daudelin (1996) contends that reflection is a problem-solving process, which occurs in four interrelated phases: (1) articulating a problem; (2) analyzing the problem; (3) developing and testing a tentative theory for solving the problem; and (4) deciding how and whether to act to resolve the problem. These descriptions of reflection suggest the process is initiated when individuals become aware of or concerned with an incident, problem, or event; possible solutions and consequences are considered; and finally, a preferred course of action is determined. As a learning process, Daudelin captures the essence of reflection:
Reflection is the process of stepping back from an experience to ponder, carefully and persistently, its meaning to the self through the development of inferences; learning is the creation of meaning from past or current events that serves as a guide for future behavior. (Daudelin, 1996, p. 39, emphasis added)

Therefore, we define reflection as a learning process examining current or past practices, behaviors, or thoughts in order to make conscious choices about future actions. This definition implies that reflection is the combination of hindsight, insight, and foresight.

A model of reflection. To make the concept of reflection understandable to educational practitioners, we have slightly altered David Kolb’s (1984) model of experiential learning, which is one of the most often-cited conceptualization of the reflective process. To assist educational practitioners in translating Kolb’s concepts, we have made some alterations to his original model (see Figure 1). First, we have inserted the terms ‘socializers’, ‘reflectors’, ‘analyzers’ and ‘doers’ for the various phases. Second, the additional phase, planning for implementation, has been inserted to show the importance of determining what actions to take (i.e., future actions) and what evidence will be used to determine if these future actions are successful (i.e., success indicators). This additional phase underscores our earlier-stated definition of reflection being a process for making conscious choices about future actions.

Finally, to capture the essence of each phase of the reflective process, we substitute a one- or two-word question:

- When recounting an event (concrete experience, reflective observation), individuals must consider what happened prior to and during this event. We abbreviate this phase as What?

![Figure 1. Model of reflective thought and action (adapted from Kolb, 1984)](image-url)
As individuals attempt to understand why the event transpired (abstract conceptuation), they determine what they have learned about the situation. We abbreviate this phase as So what?

To anticipate future actions and consequences (planning for implementation, active experimentation), individuals determine what they will do similarly and/or differently. We abbreviate this phase as Now what?

Our experience is that using these simple terms—What? So what? Now what?—is a very productive way for practitioners to recall and translate the model of reflective thought and action. Throughout the remainder of the article, we will provide numerous examples of how these three phrases apply to the reflective processes and activities suggested by ourselves and other authors.

School improvement

Definition. Increased pressure from local communities, state departments of education, and the federal government for schools to achieve certain standards or targets for student learning has resulted in massive school reforms, generally referred as school improvement. As a result of these external pressures, individual schools and entire school systems are more likely to monitor and publicize their students’ learning outcomes. A direct link between school improvement and student learning underscores most definitions of the term:

School improvement is a strategy for educational change that enhances student outcomes as well as strengthening the school’s capacity for managing change. (Harris, 2002, p. 10)

School improvement [is] any change that result[s] in an enhanced environment for student and teaching learning. (Swygert, 2004, p. 2)

Related concepts. With greater attention devoted to school improvement in the past decade, a number of related terms and concepts have been used to capture this school-wide focus on teaching and learning. For example, data-driven school improvement is becoming part of our language and practice (Johnson, 1997). This term emphasizes the need to design and implement programs and practices that result in measurable student learning. In addition, learning communities exist when members of the organization actively participate in continuous learning and improvement and their focus on student performance results in instructional improvements (Newmann & Wehlage, 1995; Fullan, 2000; York-Barr et al., 2001). Evidence of improvements in learning communities includes fewer instances of student absenteeism, reduced gaps in achievement for students from different socioeconomic and ethnic backgrounds, and teachers having a greater sense of shared responsibility for student learning (Hord, 1997). Finally, instructional capacity increases when teachers and principals understand the core technology of teaching and learning, particularly effective models of teaching (see King, 2002; Joyce et al., 2003); engage in frequent conversations about teaching and learning (Little, 1982; Pajak & Glickman, 1989; Darling-Hammond, 1998; Blase & Blase, 2000); create coherence by aligning curriculum, instruction, and standards
Developing a culture of reflection (National Association of Elementary School Principals, 2001; Knapp et al., 2003); and use multiple sources of student assessment data (NAESP, 2001; King, 2002).

Regardless of how the school improvement process is defined, the basic message is that educators have a collective sense of direction for and commitment to student learning, aided by constant reflection on their practice. If collective action for school improvement is to be attained, then:

Teachers must believe that positive and significant change is possible. As they join together, they begin to realize that others, like themselves, are interested in and committed to significant and positive improvements in the teaching and learning process. Together, improvement seems possible. Alone, improvement seems less probable. (York-Barr et al., 2001, p. 125)

Culture

Definition. Peterson and Deal (2002) indicate that every school has its own distinct and unique culture comprised of a complex set of rituals, folkways, and values that shape behavior and relationships. Schein (1992) conceives of culture existing at three levels. At the most tangible level are visible artifacts, such as the school’s architecture, stories, ritual, and traditions. Values, the second level, govern organizational members’ behavior and rationale for their actions. Although values assist in understanding why the organization works the way it does, they do not explain the driving forces or essence of the culture. These driving forces are the underlying assumptions that comprise the third, and most hidden, level of culture. These assumptions not only shape members’ thoughts, perceptions, feelings, and behaviors, but also guide the organization’s relationship to the environment; the nature of reality, time, space; and the nature of human activity and human relationships.

Culture and school improvement are integrally connected. Although many schools rely on federal mandates and standardized tests to measure the success of school improvement efforts, Swygert (2004) maintains that true school improvement depends on changes in the school culture. If culture is the social energy driving a school, then school leaders must be mindful that:

Strong positive cultures do not just happen. They are built over time by those who work in and attend the school and by formal and informal leaders who encourage and reinforce values and traditions. Many schools limp along with weak and unfocused cultures due to a paucity of leadership and lack of concern. The central concern here is the development of meaningful and productive schools. Leaders must shape and nourish cultures where teachers can make a difference and every child can learn and where there is passion and commitment to designing and promoting the absolutely best that is possible. (Peterson & Deal, 2002, p. 8)

We believe that when school leaders are attentive to building a culture of reflection, where daily interactions and deliberations focus on teaching and learning, then meaningful school improvement will occur. To understand how this learning culture appears in practice, in the remainder of the article we describe activities school administrators and teachers can incorporate to stimulate students’ academic and social development, team development, and collaborative school-wide improvement.
Reflection and student learning culture

Teachers and principals dedicate themselves to help students learn to read, write, and manipulate numbers; however, they almost always will say they want students ‘to become self-directed learners’, ‘to think for themselves’ and ‘to act responsibly’. These learning-to-learn and social skills develop as students become more critically reflective about their learning and behavior. Promising reflective strategies for encouraging self-initiated, lifelong learning are teaching students to use portfolios, self-assessments and conflict resolution strategies.

Portfolios

Standardized tests have become the predominant form of assessment in American schools, primarily for the purpose of holding educators accountable for student performance (Swygert, 2004). Although these tests provide common information on what students know, they tend to ignore how students learn and apply information. Therefore, learning portfolios have become an increasingly common method for authentically assessing what students have learned, how they have come to learn this information, and how their learning may be altered in the future (Courtney & Abodeeb, 1999).

Portfolios are a selective collection of student work intended to document their learning (Walther-Thomas & Brownell, 2001). As they prepare portfolios, students engage in the three phases of our reflective model (see Figure 1) by documenting their learning (What?); considering their thoughts, feelings, and changes (So what?); and determining future goals (Now what?) (Courtney & Abodeeb, 1999). Furthermore, portfolios are a way to authentically assess students’ learning; facilitate communication between students, teachers, and parents; and encourage students’ self-direction (Hall & Hewitt-Gervais, 2000). When using portfolios to accomplish these goals, various guidelines can be followed for collecting and assessing information:

- Align the substance of portfolios with the content standards for the class or lesson.
- Provide opportunities for students to reflect on their learning.
- Encourage students to incorporate multiple sources of evidence.
- Evaluate students’ entries and discuss their learning (Walther-Thomas & Brownell, 2001).

Self-assessments

Most measures of student learning, such as standardized tests, provide evidence of achievement for public reporting. However, Stiggins (2002) maintains self-assessments are underutilized and should be incorporated as a reflective learning tool for students. Self-assessments help students to gauge their own learning and better understand their own growth and success while taking greater responsibility for their own learning (Shepard, 2001). On one hand, because most teachers have not been
adequately prepared to design classroom assessments, they need assistance in how best to incorporate self-assessments into their teaching. (An excellent source for reflective exercises and activities regarding teachers’ assessment practices can be found in *Assessment for learning: an action guide for school leaders* by Chappuis et al., 2004). On the other hand, students may have had few opportunities to assess their own learning and need to be taught self-directive learning strategies. The questions Chappuis and his colleagues (2004) suggest that students use to assess their own learning align with our description of the reflective phases:

1. Where am I now? (*What?*)
2. Where am I trying to go? (*So what?*)
3. How do I close the gap? (*Now what?*)

These three reflective questions are powerful ways for students to monitor their progress towards clearly-defined goals. The first question asks students to assess what they currently know relative to the final objectives or goals, which can be done by comparing their work with finished products, using teacher feedback, and reflecting on questions posed by their teachers. Question two deals with future goals and intentions, which teachers can constantly reinforce by informing students of the reasons for learning certain information, visibly posting learning objectives in the classroom, and providing examples of outstanding examples of finished work. Finally, the last question forces students to determine how to reach their desired goal, which occurs as they ponder such reflective questions as ‘What do I need to change in my work to improve its quality? What specific help do I need to make these changes? From whom can I get help? What resources do I need?’ (Chappuis et al., 2004, p. 174).

Conflict resolution

Besides academic learning, educators are determined students develop social responsibility and interpersonal relationships, as evidenced by the recent interest in character education (see Lickona, 1991; Benninga & Wynne, 1998; Houston, 1998). As concerns over bullying and physical assaults in schools continue, one of the most promising strategies is teaching students conflict resolution strategies. The intent of conflict resolution is to improve relationships between students and teach them a process for constructively resolving future conflicts (Johnson & Johnson, 1996; Gillespie & Chick, 2001). Resolving conflicts in a reasonable manner requires students to learn social processing skills that allow them to define a problem, generate alternative strategies for resolving the problem, select and implement a solution, and evaluate the outcomes of their solution. These social development skills mirror our three phases of reflection as is clearly shown in the steps for resolving conflicts advocated by Johnson et al. (1995):

- Define the conflict (*What?*)
- Exchange positions and interests (*What?*)
- Reverse perspectives (*So what?*)
• Suggest solutions for mutual gain (Now what?)
• Reach an agreement (Now what?)

Reflection and team culture

Reflection also can become embedded in the school culture by encouraging work
team members to monitor and assess their development and performance. To assist
teams in their development, school leaders and team members should be aware of
several principles that can enhance or inhibit team functioning. For instance, teams
experience fairly predictable developmental phases as they work together, as concep-
tualized by Tuckman (1965):

1. In the forming phase members are relatively cordial and congenial to one another
   and question their ability to contribute to the team’s success.
2. During the storming phase tension arises as members question their own and
   others members’ participation and decide whether or not to invest in the team’s
   outcomes.
3. When entering the norming phase clarity of purpose and direction are established,
   leading to more productive involvement and commitment.
4. Finally, in the performing phase, increased productivity occurs as team members
   learn how to work together more effectively.

In addition, various structures and processes affect team development and perfor-
mance, including team size and composition. Often, teams larger than six people
become more difficult to manage (Johnson & Johnson, 1999). Also team performance
can be affected by the age, experience, gender, and ethnicity of team members;
whether participation is voluntary or mandatory; and whether a new or existing team
is being utilized to complete a task (York-Barr et al., 2001). Finally, the time and loca-
tion of meetings, group processes, and closure activities can affect team members’
reflection (York-Barr et al., 2001).

As teams form and mature, reflection can become part of the norms and expecta-
tions of their culture. We describe below several strategies for developing a reflective
team culture.

Initial team formation

As a team begins to work together, members can be encouraged to reflect on the
reasons why they were selected and what is expected of them. These types of reflective
questions allow possible ‘hidden agendas’ to be revealed, which can assist members
in moving from the forming to the storming stage of development. Wigtil and Kelsey
(1978) propose reflective question to guide early team discussions:

• Is there support for our team throughout the organization?
• Were we prepared to take on our team responsibilities?
• Does the climate of the organization allow us to examine how we make decisions
  and monitor our goals?
● How are our individual and organizational roles being met?
● Are we allowed to participate in different roles?

Another way to stimulate reflection among team member early in their formation is to use inventories to ascertain team members’ biases and preferences. Biech (2001), for example, has developed an inventory asking team members to indicate whether they agree or disagree with the following statements:

1. A team needs a strong leader, even if the leader intimidates some team members.
2. The team should meet only if all members are able to attend.
3. There are often times when individual team members must do what they think is right, even if it conflicts with a team decision.
4. Consensus decisions generally take too much time and result in watered-down decisions.
5. It is healthy for several team members to talk at the same time; it shows team energy and enthusiasm.
6. Teams should take time up front to establish clear roles for each member.
7. It is difficult for a team to succeed when it does not have clear goals.
8. Teams are more successful when they are able to avoid conflict.
9. A team should set aside meeting time to explore member feelings and relationships.
10. The team should not actively try to get quiet members to participate. They will participate when they have something to contribute.
11. In truly effective teams, members have a personal liking for one another.
12. Once a team gets an established way of working, it is unproductive to spend time changing it. (Biech, 2001, p. 6)

Once these inventories have been individually completed, a discussion among group members can reveal common assumptions and areas of disagreement. These types of exercise can be quite helpful as teams reach the storming phase and are searching for common norms and expectations to drive their work relationships.

Ongoing team development

After teams have been functioning, individuals can reflect on how they are adhering to their earlier-stated norms and expectations. This type of reflective activity can be quite useful when teams have moved into the norming stage of development, and may assist members to redefine group processes in order to move into the performing stage. Once again, having members complete and discuss an inventory can stimulate this type of reflective discussion (Barnett & O’Mahony, 2002). For instance, an activity we have used with teams is to introduce them to Larson and LaFasto’s (1989) eight characteristics of effective teams, and then engage them in the following reflective processes:

● For each team characteristic, individuals rate their current team using a 10-point scale (What?).
● Team members share their responses and reflect on their team’s strengths and areas for improvement (So what?).
Collectively, they decide how to continue using processes that are working well as well as how to change their group processes (*Now what?*).

To keep teams moving forward, reflective strategies also can be used to focus their attention on more immediate goals or accomplishments, especially at the conclusion of team meetings. York-Barr *et al.* (2001) suggest using reflection worksheets to stimulate team thinking and discussion. For example, the words—Learned? Affirmed? Challenged?—can be listed on a sheet and team members write a few comments before discussing their responses. In addition, a sheet of paper can be divided into four quadrants with the headings: *Key ideas, Specific insights, Questions raised* and *Implications for action*. Team members complete and compare their reactions. Finally, sentence completion items might be posed for individual and collective reflection:

- I am FEELING …
- Things I might THINK about differently …
- Things I might SAY differently …
- Things I might DO differently … (York-Barr *et al.*, 2001, p. 98)

**Team accomplishments**

One of the most important qualities of effective teams is having clear goals and expectations (Larson & LaFasto, 1989). Without these, teams flounder because of a lack of direction and sense of accomplishment. Individually and collectively, team members need to know their efforts are making a difference to the school. One of the quickest ways to lose team commitment is if members sense their time is being wasted, their contributions have little or no effect on the team’s direction, or their accomplishments are ignored by others in the school. To ensure goals are clear and are being met, reflective activities can be used within the team as well as with other members of the school organization. Periodically, teams can pause to ask themselves the following reflective questions:

- What goals have we set for ourselves? (*What?*)
- Who else knows about our goals? (*What?*)
- What evidence do we have that our goals are being met? (*So what?*)
- If we have achieved some of our goals, do we need to establish additional goals? (*Now what?*)

Similarly, teams may want to determine if others within and/or outside the school recognize their efforts by posing these types of reflective questions:

- What goals have we established for the school? (*What?*)
- Are our goals important for student learning? (*So what?*)
- Do we know if our goals are being reached? (*So what?*)
- If our goals are unclear or unmet, how might we improve? (*Now what?*)
Reflection and a school-wide collaborative culture

Besides promoting reflection for students and teams, school leaders also can shape a reflective school culture where teachers collaboratively examine teaching practices and student performance to determine where improvements are needed. Sponsoring brown-bag lunches, supporting co-attendance at conferences, sharing at faculty meetings, and building a professional library encourage opportunities for collaborative reflection about teaching and learning (Ronenberg, 2000). Similarly, school leaders can encourage teachers’ reflective conversations about teaching and learning, using think-tanks, study groups, support groups, video and book clubs, and roundtables (York-Barr et al., 2001).

A collaborative culture of inquiry also can be encouraged through using reflective questioning strategies and collaborative school improvement initiatives, such as visioning, action research, and professional development. We now direct attention to how these reflective strategies can become ingrained in the actions, values and underlying assumptions driving the school culture.

Reflective questioning

For reflection to become part of the fabric of everyday life in schools, principals must constantly model and encourage this process. They also can facilitate teachers’ reflective tendencies using reflective questioning strategies in their daily interactions. Reflective questioning is a powerful way for professionals to examine their current performance, consequences of their actions, and future possibilities (Lee & Barnett, 1994). If school leaders build reflective questioning into their actions with teachers, they are more likely to establish targets for student performance, identify outcomes and success criteria for students, and incorporate students’ viewpoints in their decisions (Wroe & Halsall, 2001). Lee and Barnett have defined this process for interpersonal communication as follows:

Reflective questioning is a technique in which one person prepares and asks questions that are designed to provide opportunities for the respondent to explore his or her knowledge, skills, experiences, attitudes, and values. … Reflective questioning encourages the respondent to explore his or her own thinking; it is not intended to direct the respondent to a conclusion pre-determined by the questioner. For questioning to be truly reflective, the questioner must respect the respondent’s statements, suspend judgment, and avoid attempts to manipulate his or her thinking. (Lee & Barnett, 1994, p. 17, emphasis in original)

Clearly, the intent of reflective questioning is not to force others to accept the other person’s position. Rather, it is meant to encourage other people, typically teachers, to think through their own actions and motives, coming to a self-initiated conclusion, insight, or realization.

How to use reflective questioning. Effective reflective questioning occurs when principals prepare thoughtful questions and then ask them in ways that allow teachers to
experience self-discovery. When considering what question to pose to teachers, these guidelines should be considered:

- Develop questions based on the respondent’s experiences.
- Word questions using neutral, non-judgmental language.
- Keep an overall purpose for your questioning in mind.
- Be prepared to ask follow-up questions based on the respondent’s comments (Lee & Barnett, 1994).

Once again, the process of reflective questioning follows the three phases of reflection (see Figure 1):

- Teacher selects an event (concrete experience) (*What?*)
- Teacher describes the event in more detail (reflective observation) (*What?*)
- Teacher derives meaning from the event (abstract conceptualization) (*So what?*)
- Teacher decides future actions and outcomes (planning for implementation) (*Now what?*)

To ensure reflective questioning becomes an established practice, principals can use this process with teachers and also explore ways for teachers to work together to use reflective questioning.

*Reflective questioning between principals and teachers.* If principals want to help teachers reflect on their teaching practices and determine how students are learning, then the use of reflective questioning can be built into the evaluation process. While there are many models and approaches to teacher evaluation, we subscribe to the ideas advanced by Cheever and Earsing (2002). They advocate that reflection begins with goal setting where teachers are encouraged to consider and form personal and professional goals at the beginning of the year. As the school year progresses, principals promote reflection by conducting reflective conversations that focus on these original and/or revised goals.

Another common practice in schools is for principals to observe teachers and then analyze their instructional practices and activities, using the *clinical supervision* process. The purpose of this observation and feedback process complements reflection since it is intended to assist teachers in becoming more self-directing and willing to accept feedback from other people (Beach & Reinhartz, 2000). While there are variations on the clinical supervision cycle, Goldhammer (1969) advocates the follow five-step process:

- Preobservation conference between the teacher and principal.
- Classroom observation by the principal.
- Analysis of the lesson by the principal.
- Supervision conference between the principal and teacher.
- Post-conference analysis and reflection by the principal regarding his/her effectiveness.

As these steps demonstrate, ‘the reflective process takes center stage in the clinical supervision cycle’ (Sullivan & Glanz, 2000, p. 108).
A similar approach for supervising classroom performance is developmental supervision, where principals take into account teachers’ needs. The ultimate goal of this supervisory process is to assist teachers in self-directing their own improvement (Glickman & Gordon, 1987). Based on the developmental needs and expertise of teachers, principals can use four supervisory styles:

- **Directive control** style is used when teachers need specific assistance and they work with the principal to create a mutually-agreed upon course of action.
- **Directive information** style is used when teachers need help and the principal dictates their choices for improvement.
- **Collaborative** style is appropriate when teachers want to improve and the principal provides guidance in developing a mutually agreed-upon course of action.
- **Non-directive** style is used when teachers have the expertise to determine their own strategies for improvement, and the principal assists them in clarifying and reflecting on their options.

The directive styles tend to be used when teachers are floundering and need intervention from another professional; however, the collaborative and non-directive styles are most appropriate for using reflective questioning strategies.

A third teacher supervision practice, cognitive coaching, uses three phases: a planning conference, the classroom observation, and a reflecting conference (Costa & Garmston, 1994). Typically, cognitive coaching is used as principals work with teachers, but it also is appropriate to have teachers engage in these conferencing and observational strategies with their peers (Beach & Reinhartz, 2000). The distinguishing feature of cognitive coaching is the emphasis on teachers reflecting on their thought processes by focusing on instructional practices and activities that enhance student learning. Similar to clinical and developmental supervision, the intent of cognitive coaching is to assist teachers to become less dependent on others for feedback and insights about their teaching. They are encouraged to become more autonomous by being able to self-direct and self-modify their thoughts and actions (Sullivan & Glanz, 2000).

Reflective questioning between teachers. Teachers can reflect on their actions and desired outcomes for students with their peers using tuning protocols, coaching, and mentoring. Tuning protocols are a powerful way for teachers to use a data-driven decision-making process for examining student work, assessment strategies, homework policies, or classroom management (Easton, 2002). In this process, a teacher presents ideas to his/her peers, receives ‘warm’ and ‘cool’ feedback, and reacts to the ideas presented by other teachers (McDonald, 2002). A seven-step process for tuning protocols has been described by Easton (2002), which illustrates our three phases of reflection:

- **Opening**—facilitator reviews the purpose and steps for the tuning protocol process.
- **Presentation**—presenting teacher describes the ways in which student learning is being measured and shares student performance data (What?).
Clarifying questions—other teachers ask the presenter to clarify points made during the presentation (What?).

Individual writing—presenter and other teachers write notes or prepare questions based on the discussion (So what?).

Participant discussion—teachers provide the presenter with feedback on the presentation and questions he/she has posed to the group (So what?).

Presenter reflection—presenter responds to the ideas presented by the other teachers (So what?).

Debriefing—presenter reacts to the process and what next steps will be taken (Now what?).

Peer coaching is a widely-accepted and popular way for teachers to obtain feedback about and reflect on their teaching (Showers & Joyce, 1996). Rather than evaluating or judging teacher performance, the intent of peer coaching is for teachers to assist other teachers to modify their behaviors by providing positive feedback to one another (Slater & Simmons, 2001). By engaging in a peer-coaching relationship, teachers are better able to examine their own teaching practices, monitor and modify their actions, and assess their influence on student achievement. Besides being able to better apply new skills (Showers & Joyce, 1996), the peer coaching experience is an ideal way to reduce teachers’ isolation and improve discussions focused on student learning (Slater & Simmons, 2001).

If coaching is not part of the school culture, then professional development may be necessary as they begin to implement this process. For example, Slater and Simmons (2001) outline a comprehensive training program, including sessions on peer coaching research, observation instruments, and conferencing skills as well as ongoing meetings of coaches to monitor and adjust the process. In addition, Beneditti (1997) suggests four steps in establishing and supporting a peer coaching program:

- Allow teachers to select their own peer coaches.
- Ensure coaches are familiar with clinical supervision practices.
- Cover classes for coaches so they can observe and meet with their peer partners.
- Organize ongoing meetings for coaches to learn new skills and reflect on their experiences.

There is no one way to implement a peer coaching program; however, Garmston (1987) describes three models of peer coaching that might serve as a starting point for teachers desiring to implement this form of support:

- Technical coaching—teachers incorporate a new skill that the school staff has agreed to use (e.g., cooperative learning, reading recovery).
- Collegial coaching—teachers self-select new practices they would like to use (e.g., higher order thinking skills, portfolios).
- Challenge coaching—teachers self-select an issue and obtain feedback from a peer group (e.g., discipline strategies, parent involvement).

In many instances, individual teachers observe one another and provide feedback (e.g., technical and collegial coaching), similar to the clinical supervision and
cognitive coaching processes described earlier. However, challenge coaching is not dependent on observation, but allows a teacher to investigate a particular area of need with the assistance of his/her peers. The seven-step tuning protocol process (Easton, 2002) described earlier is an example of challenge coaching.

Another significant relationship that can develop among teaching peers is mentoring. Typically, mentoring is seen as a long-term relationship in which the mentor assists a mentee by teaching, sponsoring, counseling, guiding, protecting, and encouraging (Odell, 1990). Although mentors may coach their mentees to learn various skills, the relationship tends to last much longer and is intended to support the career development of mentees (Daresh & Playko, 1991; Beach & Reinhartz, 2000). Numerous benefits are afforded to both parties: mentees gain self-confidence, new leadership and management skills, and insights about their career and advancement while mentors are exposed to new ideas and clarify their own thoughts and actions (Barnett, 2001).

Just as coaching skills and relationships must be nurtured, so too must mentors and mentees be prepared for and supported in developing their new roles and relationships (Gillman & Rickert, 1991). We have developed and delivered SAGE Mentor Program in collaboration with the Australian Principals Centre. This two-day program is intended to sensitize mentors to their roles, build their skills in helping mentees reflect on their experiences, and determine ways to allow their relationship to mature over time (Barnett, 2001). An underlying theme of the SAGE program is the importance of mentors becoming more reflective about their practice. Mentors are introduced to our model of reflection (Figure 1), practice reflective questioning strategies, and critically examine how their current habits and attitudes may facilitate and/or impede the mentoring relationship. We use a reflective inventory, ‘A test of a mentor’ (Bell, 1998), to assist mentors to reflect on how their tendencies to socialize, dominate relationships, and reveal personal information about themselves might affect their mentoring relationships.

**Collaborative efforts: vision creation**

Perhaps one of the most written about and discussed features of schools is vision. As Barth (1993) reminds us, when members of the school community have a shared vision, then improvement becomes more focused on assisting the school to reach its desired future. Visions have been defined many ways, including a new way to see patterns and possibilities (Kotter, 1987), a desired future for the organization (Nanus, 1992), and what members would like to see their organization become (Barth, 1993). Although having a school vision is embraced by most educators, they sometimes struggle with how best to develop a vision. Through the power of reflection, there are a variety of ways school leaders and staffs can begin to uncover the desired future of their school and how their actions can contribute to this vision. We briefly describe a few promising approaches below.

*The intuitive approach.* In this approach, educators’ imagination and creativity are used to determine their desired future (Holpp, 1999). When meeting with groups of
teachers, these types of reflective questions can spark creative discussions about vision:

- What is our purpose?
- What practices can we implement to better achieve our purpose?
- Which of these practices are the most important to you?
- As a group, can we agree on which of these practices are most important?

**The analytical approach.** A more structured means for developing a vision asks a series of who, what, when, where, why, and how questions:

- Whom do we serve?
- What do we do?
- When do we do it?
- Where do we want to go with our efforts?
- Why are we focusing on this work and these goals?
- How do we put the above into operation? (Holpp, 1999, p. 72)

**The benchmarking approach.** These first two approaches ask educators to examine their own school; however, they also can explore ideas and practices being used in other organizations (Holpp, 1999). Reflective questions to guide this thinking process include:

- What are other schools doing that we want to do?
- What ambitions and values are reflected in what they are doing?
- How could we improve on their efforts?
- How would it feel if we achieved our ambitions?

**The backwards mapping approach.** Another structured way to develop a vision is to identify important learning outcomes for students and then determine key factors in the school that are contributing to these outcomes or would need to change, a process referred to as ‘backward mapping’ (Barnett, 2000). We have used this strategy with individuals and teams of educators, using a series of reflective questions:

- **Learning outcomes**—What are students currently doing well and what other learning outcomes should they be achieving?
- **Instructional climate**—How does the school’s climate contribute to and inhibit these outcomes?
- **Instructional organization**—How does the way we deliver instruction and assess student learning contribute to and detract from our current and desired learning outcomes?
- **Community context**—In what ways does the community contribute to and impede our current and desired learning outcomes?
- **Personal beliefs and experiences**—What core beliefs and experiences influence how we work together and view student success?
Developing a culture of reflection

- Institutional context—What federal, state, and local factors contribute to or detract from our ability to reach our current and desired student outcomes?
- Leadership—How does the leadership of the school contribute to or impede our instructional organization, climate, and student learning outcomes?

The SWOT approach. Engaging members of the school community in a strengths–weaknesses–opportunities–threats (SWOT) analysis reveals factors influencing the school’s vision. A SWOT analysis also is a means of gaining perspective and finding the relationships among factors influencing the way the school operates. This analytical approach is based on data gathered through individual interviews, staff surveys, parent reviews, and school council reviews. The core reflective questions guiding this process include:

- Regarding our vision for student success, what are the strengths, weaknesses, opportunities and threats of the school’s: Organization and policies? Programs and instructional delivery? Culture, ethos, and climate? Community context?

Collaborative efforts: action research

Given the importance of gathering and reflecting on student performance data, establishing action research teams is an extremely valuable way to focus teachers’ collective attention on school improvement. Action research can be conducted by: (a) individual teachers; (b) several classroom teachers; or (c) the entire school community (Calhoun, 1997). The action research process consists of three interrelated phases: looking (i.e., defining or describing the problem and its context), thinking (i.e., analyzing and interpreting the situation), and acting (i.e., formulating and incorporating solutions to the problem) (Stringer, 1999). Sagor (2000) outlines the following action research steps, which mirror our three reflective phases:

- Topic selection—select a teaching practice or student learning issue (What?).
- Theory clarification—identify personal beliefs, values, and theories that reflect perspectives about the topic (What?).
- Research questions—pose possible research questions (So what?).
- Data collection—collect information using agreed-upon measures (What?).
- Data analysis—examine information to determine trends in the data (So what?).
- Data reporting—report results of the analysis to others in the school (So what?).
- Informed action—plan and implement future actions (Now what?).

Because action research forces teachers to reflect about data collected from their own and others’ classrooms, the tendency to take ownership in implementing school improvement efforts increases (Bloom et al., 1998). Examples of action research projects by classroom teachers abound. For instance, Sagor (2000) reports that teachers in one school examined how their classroom practices affected students’ spelling abilities, independent learning skills, lifelong fitness skills, social skills and problem-solving abilities. Other recent studies have explored the influence of college tutors on
students’ reading abilities, the benefits students realize from experiential learning activities, and the impact of service learning on students’ attitudes (Caro-Bruce, 2000). Often, action research focuses on social justice issues, such as how teachers influence gender equity (Hollingsworth, 1997), how belongingness affects the achievement of African-American students (Caro-Bruce, 2000), and what teaching strategies support the reading development of struggling Grade 9 readers (Caro-Bruce, 2000).

Principals can infuse action research into the school culture in a variety of ways. As mentioned earlier, they can encourage teachers to engage in think tanks, study groups, support groups, and school rounds by allocating time and other resources to support these teacher reflection activities. When first initiating the action research process, school leaders should provide multiple ways for teachers to reflect on what they are learning with their colleagues during staff meetings; in written correspondence (e.g., newsletters, emails); and in informal gatherings, such as brown-bag lunches. As collective conversations about teaching and learning arise from action research, a collaborative culture of reflection focusing on school improvement emerges (Sagor, 2000).

**Collaborative efforts: professional development**

Another powerful way of infusing reflection throughout the school culture is for teachers and staff members to participate in and examine the effects of professional development. Unfortunately, many educators complain that professional development activities lack follow-up activities, are fragmented, and have little impact on student or teacher performance. Therefore, for professional development to be effective it must: (a) be clearly focused on learning and learners; (b) emphasize individual and organizational change; (c) introduce changes in small doses guided by a grand vision; and (d) be ongoing and embedded in teachers’ work (Guskey, 2000).

Reflection can become integrated into professional development in a variety of ways. As mentioned earlier, when teachers examine their practices during evaluations, coaching and mentoring experiences, and action research projects, they are being encouraged to: (a) diagnose problems and prescribe solutions; (b) provide one another with information and demonstrate their practice; (c) discuss how best to apply new ideas; and (d) practice and give feedback to one another (Sparks, 1983). In addition, to determine if these activities are having any impact on teachers, their instruction, and student learning, a variety of reflective questions can be asked. Guskey (2000) provides an extremely useful framework for determining the impact professional development is having within the school culture.

These five levels of evaluation, representative reflective questions, and means for gathering evaluation data are summarized in Table 1. The five levels of reflection, each one drilling deeper into the possible impact of the professional development experience, are briefly described below (see Table 1):

- **Participants’ reactions** (Level 1)—focuses on reactions to the professional development experience (asked at the conclusion of a professional development session).
<table>
<thead>
<tr>
<th>Evaluation level</th>
<th>Reflective questions</th>
<th>Ways to gather information</th>
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</thead>
<tbody>
<tr>
<td>Level 1:</td>
<td>Did the content make sense?</td>
<td>Questionnaires</td>
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<tr>
<td>Participants’</td>
<td>Was your time well spent?</td>
<td>Focus groups</td>
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<td>reactions</td>
<td>Was the instructor prepared and knowledgeable?</td>
<td>Interviews</td>
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<td></td>
<td>What are your reactions to the instructional activities?</td>
<td>Journals</td>
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<td></td>
<td>Was the room arrangement conducive to your learning?</td>
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<tr>
<td>Level 2:</td>
<td>Were the learning objectives for the session(s) achieved?</td>
<td>Simulations and demonstrations</td>
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<tr>
<td>Participants’</td>
<td>What did you learn today?</td>
<td>Participants’ oral and written reflections</td>
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<tr>
<td>learning</td>
<td>What else do you need to learn about this topic?</td>
<td>Case studies</td>
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<td></td>
<td>How do you intend to apply information?</td>
<td>Participant portfolios</td>
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<td></td>
<td>What facilitated or impeded your learning?</td>
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<td>Level 3:</td>
<td>What policies affect our implementation?</td>
<td>District and school records</td>
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<tr>
<td>Organization</td>
<td>Has adequate time been provided for implementing our goals?</td>
<td>Written policies</td>
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<td>support and</td>
<td>How are you supported when trying new ideas?</td>
<td>Focus groups</td>
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<tr>
<td>change</td>
<td>Do central office administrators know about and support your efforts?</td>
<td>Interviews with participants and administrators</td>
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<td></td>
<td>Are results of new practices being shared with others?</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>Level 4:</td>
<td>How will we know if new skills are being practiced?</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>Participants’</td>
<td>What will be observed if effective implementation is occurring?</td>
<td>Oral and written reflections</td>
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<tr>
<td>use of new</td>
<td>What new knowledge are you putting into practice?</td>
<td>Teacher portfolios</td>
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<tr>
<td>knowledge and</td>
<td>What problems are you having with the implementation?</td>
<td>Direct observation</td>
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<tr>
<td>skills</td>
<td>What insights are you sharing with teachers and administrators?</td>
<td>Video and audiotapes</td>
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<td></td>
<td></td>
<td>Interviews with participants and supervisors</td>
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<td>Level 5:</td>
<td>How has the implementation affected student achievement?</td>
<td>Standardized test results</td>
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<tr>
<td>Student learning</td>
<td>How has the implementation affected student attitudes?</td>
<td>Questionnaires</td>
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<tr>
<td>outcomes</td>
<td>Have all students acquired the desired learning outcomes?</td>
<td>Interviews with students, teachers, parents</td>
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<td>Are learning outcomes the same for students from different ethnic backgrounds or</td>
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<td>gender?</td>
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<td></td>
<td>How are students doing on standardized tests?</td>
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</table>
Participants’ learning (Level 2)—examines perceptions of what was learned as a result of the experience (asked at the conclusion of a professional development session).

Organization support and change (Level 3)—reveals how the school’s current policies and practices support or inhibit the proposed goals of the experience (asked soon after a professional development session).

Participants’ use of new knowledge and skills (Level 4)—explores how the ideas generated from the experience are being applied (asked at different times throughout the school year).

Student learning outcomes (Level 5)—assesses how student learning has been affected by the experience (asked at different times throughout the school year).

Level 1 questions ascertain whether participants enjoyed the professional development experience and believed it was worthwhile. Most professional developers obtain this level of information regarding participants’ perceptions about the activities and delivery using questionnaires and/or open-ended questions. One way we do this is by posing these questions at the conclusion of a session: (1) What are you glad we did today? and (2) What do you wish had happened? Other approaches ask participants to list items under the headings of ‘Hot’ and ‘Cold’ or to discuss their responses to the prompts ‘Learned?’ ‘Affirmed?’ and ‘Challenged?’ (York-Barr et al., 2001). If session organizers are interested in immediately determining what participants feel they have learned from the professional development experience (Level 2), they can use similar written and verbal activities (see Table 1).

As mentioned, many educators are disillusioned by professional development since it tends to be forgotten once the workshop is finished. To keep professional development alive within the school culture, teachers and administrators must commit to using the types of data-gathering activities and questions summarized in Table 1. Doing so is a proactive way to ‘drill deeper’ into the school culture by reflecting on the effects of professional development on teachers’ knowledge and skills, the school’s policies and practices, and student performance. Collecting and analyzing Level 3, 4, and 5 data is an excellent example of how the action research process can be used to determine ways in which teachers and students may have been affected by the school’s professional development efforts.

Conclusions and implications

In this article we have argued that meaningful school improvement only thrives when a culture of reflection focusing on teaching and learning exists. Recent empirical studies reinforce the ideas we have advanced. For instance, improved student performance is found in schools where teachers:

- Observe and critique one another’s teaching practices.
- Jointly plan, deliver, and evaluate teaching materials.
- Conduct demonstration lessons.
- Discuss actual teaching and learning activities, such as lesson plans, student evaluations, and curricular materials.
● Explore and critique actual cases of instructional and student assessment practices (Little, 1982; Darling-Hammond, 1998; Blase & Blase, 2000).

These research findings reinforce our core message: When individual and collective reflection on student learning becomes part of the culture, meaningful school improvement occurs. Despite the continual press for accountability and immediate results, school leaders and teachers who infuse reflection throughout the school are establishing the cultural conditions for school improvement that can increase student performance.

Many educational practitioners are using the structures and activities we describe; however, they may be doing so without a conscious framework for how reflection, school improvement, and culture interact and reinforce one another. Based on our experience teaching reflection, especially with school leaders, we have found that having a mental model of reflection (What? So what? Now what?) has a twofold effect. First, it provides them with a reminder that guides personal reflection on their own performance. Second, the mental model guides them in assisting others to examine their practice and ideals, especially in moving forward and making change. Furthermore, by recalling this mental model and using it to encourage student self-assessments, to improve team development and performance, and to stimulate collaborative school improvement, schools will become centers of inquiry and change, just as Blase and Blase (2000), Darling-Hammond (1998) and Little (1982) have discovered.

In conclusion, as we reflect on our work with educators in their quest to embrace reflection and infuse it throughout the school, additional insights they have revealed are worth sharing:

● Intentionally model the reflective process of What? So what? Now what?
● Expect resistance and conflict because not everyone will immediately embrace reflection.
● Keep teaching and learning as the focus of reflection.
● Connect reflection to existing school improvement initiatives.
● Assess progress informally.
● Provide support and resources.
● Reinforce and reward reflection—publicly and privately.

Notes on contributors

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