APPENDIX B

A Synthesis of the Knowledge Base Supporting the INTASC Standards for Beginning Teachers

Allan A. Glatthorn, Susan Colby, and Wanda Etheridge
East Carolina University

THE KNOWLEDGE BASE: PRINCIPLE 1

**Principle 1:** The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.

General Assessment of the Knowledge Base

Teacher’s existing knowledge in a variety of domains (e.g. knowledge of: curriculum, learners and learning, general pedagogy, content, context and self) impacts their influence on student and teacher future knowledge acquisition (Beijaard, 1996; Collinson, 1996; Grossman, 1995; Rhine, 1998).

Beijaard (1996) and Collinson (1996) believe that expert and novice teachers differ not only in the amount of knowledge they possess, but also in the way that they use this knowledge. Expert teachers are more capable of integrating their knowledge base with their teaching context and practices.

**Principle 1 References**


THE KNOWLEDGE BASE: PRINCIPLE 2

**Principle 2:** The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social, and personal development.

**General Assessment of the Knowledge Base**

The knowledge base for this principle is deep and substantial. The principle and its related knowledge and performance expectations emphasize a constructivist view of learning, one that views the learner as an active maker of meaning, rather than as a passive receiver of knowledge. Wolfe and Brandt (1998) noted that "an enriched [educational] environment gives students the opportunity to make sense out of what they are learning, what some call the opportunity to make meaning" (p. 11). In recent years the concept of *authentic learning* has been used to characterize this constructivist view of the learning process. Within this constructivist framework, the teacher is expected to know how the learner develops and how to provide learning environments that are sensitive to and provide for students' individual differences. Much attention also is being given to the value of cultural diversity and the need for the teacher to build upon such diversity.

**Principle 2 References**


**THE KNOWLEDGE BASE: PRINCIPLE 3**

**Principle 3:** The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

**General Assessment of the Knowledge Base**

This principle is concerned chiefly with four types of student diversity: learning styles and multiple intelligences, exceptionality in learning modes, first language, and ethnicity and culture. Although these can generally be considered distinct fields of study, they all have common characteristics such as a focus on individual learners, the promotion of diversity, an emphasis on the education of the whole person, and the need for the teacher to act as a reflective practitioner and decision maker as they adapt instruction to best meet student needs (Guild, 1997).

Achievement can be influenced by instructional strategies (Huang, et al., 1997; Wang, 1995) and it is therefore important that teachers modify approaches to ensure equitable pedagogy (Ladson-Billings, 1994). Differentiated instruction based on the individual needs of each learner is important. Activities should be based on the most appropriate task structures and the needs and characteristics of the students (Bellon, et al., 92; Tomlinson, 1999).

**Principle 3 References**


THE KNOWLEDGE BASE: PRINCIPLE 4

**Principle 4:** The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

**General Assessment of the Knowledge Base**

A substantial body of literature in this general area argues for the importance of teaching problem solving and critical thinking and the need to use varied instructional strategies in doing so. Research in the field of cognitive psychology provides strong support for a constructivist approach to problem-solving and critical thinking; in such an approach students use generative knowledge to solve contextualized problems. Beyer (1998) noted, "...in classes where teachers attend continuously to the cognitive skills needed to understand subject matter, students not only improve their proficiency in thinking skills, but they also attain higher achievement in subject matter" (p. 267). The teacher's role is to provide the scaffolding or structure needed for students to solve problems effectively, rather than teaching isolated "thinking skills." Brown and Palincsar (1989) support this by advocating reciprocal teaching strategies including "expert scaffolding" in which the teacher guides the student until the student becomes independently competent.

**Principle 4 References**


THE KNOWLEDGE BASE: PRINCIPLE 5

**Principle 5:** The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

**General Assessment of the Knowledge Base**

A teacher’s understanding of how to use grouping strategies, motivational principles and active learning instructional strategies is essential to creating a classroom environment where students benefit academically as well as socially.

A variety of grouping strategies can be used to meet student needs (e.g. whole-class, cooperative and ability) however, some grouping strategies produce more overall benefits for students. Research suggests that ability grouping (tracking) does not increase overall achievement in schools and can also lead to inequity (Gamoran, 1992). However, research on cooperative learning found that overall, students in cooperative groups had more academic success than their counterparts in control classes (Slavin, 1992) and that within class grouping appears to facilitate student learning (Lou, et al., 1996). Research on cooperative learning also found that people who work together learn to like one another (Slavin, 1992) which is a very important finding considering the diversity of student backgrounds. Findings from a research study found that students want work that will enhance their relationships with people they care about (Strong, et al., 1995).

Active learning uses instructional strategies that involve students in doing things and thinking about what they are doing. Using active learning techniques in the classroom is important because of the impact they have on a student’s learning (Bonwell and Eison, 1991). Students who are engaged in their work are driven by the need for mastery, understanding, self-expression and involvement with others (Strong, et al., 1995).

Student motivation is a complex issue and there is no global theory of motivation that works in all contexts (Lens, 1995; Weiner, 1992). However, basic principles for motivation can be defined based on the work of psychologists and learning theorists. Keys to motivating students can be found by knowing how to meet individual learner needs for control, competence and belonging; being aware of the degree to which a student is interested in a learning task; understanding how motivation can be both internal and external; and considering the right conditions (McCombs, 1995). A great deal of research points to the idea that capitalizing on intrinsic motivation by using a variety of strategies is beneficial (Brophy, 1987; Cameron and Pierce, 1994; Holloway, 1999; Lens, 1995).
**Principle 5 References**


McCombs, B. L. (1995). Understanding the keys to motivation to learn. What’s Noteworthy on Learners, Learning and Schooling. Aurora, CO: Mid-continent Regional Educational Laboratory.


THE KNOWLEDGE BASE: PRINCIPLE 6

**Principle 6:** The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

**General Assessment of the Knowledge Base**

The research on the effectiveness of teachers' communication tends to focus on communication for specific purposes, such as conveying high expectations and using questions to check on learning and facilitate class discussion. Several studies also examined the nature of classroom discourse, with detailed analyses of both teacher and student communication practices. Scott-Jones and Clark (1986) note, "The social environment in which learning takes place can enhance or diminish the behaviors that lead to achievement" (p.523). Caruthers (1995) suggests ways to increase student achievement through positive, more effective classroom interactions that increase all students' motivation to achieve and seek knowledge.

**Principle 6 References**


THE KNOWLEDGE BASE: PRINCIPLE 7

Principle 7: The teacher plans instruction based upon knowledge of the subject matter, students, the community, and curriculum goals.

General Assessment of the Knowledge Base

The primary purpose of planning is to provide the best possible learning opportunities for students (Bellon, et. al., 1992; Lang, 1991). Planning is a process of thinking about situations that will be encountered, goals that need to be achieved, and problems that will need to be solved (Bellon, et.al., 1992).

Successful teachers acknowledge the importance of sound instructional planning and make use of a wide range of instructional strategies and resources (Bellon, et.al, 1992; Lang, 1991; Porter and Brophy, 1988; Walter, 1984).

Characteristics of effective teachers with an emphasis on instructional planning include: (a) Effective teachers know what they hope to do through instruction, (b) goals guide the planning of effective teachers and are communicated to learners, (c) effective teachers combine goals, differentiating and integrating, (d) effective teachers use a range of instructional modes so students can achieve high level and affective outcomes (e) effective teachers adapt instruction to the nature of the subject matter, and (f) effective teachers select certain teaching strategies and methods to teach facts, skills and procedures (Porter and Brophy, 1988).

Principle 7 References


THE KNOWLEDGE BASE: PRINCIPLE 8

Principle 8: The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.

General Assessment of the Knowledge Base

Assessment is essential in the educational environment to inform and ensure the continuous progress of the learner intellectually, socially, and physically (Darling-Hammond, et.al., 1995; Haertel, 1992; Wiggans, 1998). The impact of instructionally sound assessment enhances the opportunity to learn (Darling-Hammond, et.al., 1995; Jamentz, 1994).

Jamentz (1994) discusses the need to develop the capacity of teachers to use assessment to improve instruction. This includes having opportunities to translate standards into instructional plans, developing the ability to analyze student work, helping students assess their own learning and monitoring the consequences of the assessments.

Teachers need to understand and use both formal and informal tools. Formal strategies for assessment include end of unit tests, state and national tests, and other assessments used (Airasian, 1995; Darling-Hammond, 1995). Teachers need to understand the principals of standardized testing and be able to administer these types of assessments as a method of providing information about the student, teacher, school, district and state performance levels.

Informal strategies are used as a basis for diagnosing student needs and providing feedback on progress (Helmke, 1995; McTighe, 1997; Palincsar, 1992; Shepard, 1995). Such strategies can include presentations, projects, portfolios, observations, checklists, etc. (Haertel, 1992). Teachers need to use these types of assessments because they are essential in measuring a student’s actual performance by providing data which allow teachers to determine the progress of a student and to shape future instruction (Belk, 1993; Crooks, 1988; McTighe, 1997). The teacher then uses the data to provide meaningful feedback for student performance.

Principle 8 References


THE KNOWLEDGE BASE: PRINCIPLE 9

**Principle 9**: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (student, parents, and other professional in the learning community) and who actively seeks out opportunities to grow professionally.

**General Assessment of the Knowledge Base**

Villar (1995) defines reflective teaching as a process of critical analysis whereby teachers develop logical reasoning skills, thoughtful judgment, and attitudes supportive of reflection. Reflective teaching has both cognitive and affective components (Moallem, 1997; Villar, 1995). Reagan (1993) identifies three types of reflective practice: what the teacher does before entering the classroom (planning and preparation), what the teacher does while in the classroom, and what he or she does after leaving the classroom. How teachers reflect upon their practice in all three contexts is important. Reflective teachers seek reasons, are well-informed, use and cite valid sources, look for alternatives, and consider others’ points of view (Reagan, 1993; Villar, 1995; Valli, 1997). Reflective teachers have better interpersonal relationships with students and develop a higher degree of job satisfaction (Korthagen, 1991).

Reflective practice is essential if we are to look at teaching as a professional activity rather than a technical activity (Sparks-Langer, 1991; Reagan, 1993). Teachers who are able to reflect can assess their beliefs and assumptions about learning and teaching and can more readily resolve inconsistencies and make changes that will have a greater impact on the teaching/learning process (McCombs, 1997; Reagan, 1993). The most powerful impact on student learning occurs when teachers change their practices and beliefs (Inos and Quigley, 1995).

**Principle 9 References**


THE KNOWLEDGE BASE: PRINCIPLE 10

Principle 10: The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

General Assessment of the Knowledge Base

The literature supporting this general principle gives greatest attention to the importance of parent involvement and collegial interactions. Comer & Haynes (1991), Epstein (1987), and Lazar & Slostad (1999) are representative of the widening field of literature reporting the impact of parental involvement in schools. The findings of these researchers show that when parents are involved in their children's school, when teachers and administrators provide opportunities for this involvement, academic achievement and social development are positively affected. In addition to the positive impact upon the student, research shows that parental perceptions of teachers and schools improve when teachers involve parents in curricular and extra-curricular activities.

Principle 10 References


