



Fact Sheet #3 - Performance Standard 1: Professional Knowledge

PROFESSIONAL KNOWLEDGE

The teacher demonstrates an understanding of the curriculum, subject content, pedagogical knowledge, and the needs of students by providing relevant learning experiences.

Classroom teaching is a complex activity that demands teachers possess substantial thinking skills and a solid knowledge base. Knowledge of subject matter is a prerequisite for effective classroom instruction. A teacher’s understanding of subject facts, concepts, principles, methodology, and important generalizations determines his/her pedagogical thinking and decision-making. Furthermore, according to research, the professional knowledge that is essential to be an effective teacher extends well beyond knowledge of subject matter to encompass the factors identified in the following table.¹

Key elements of Professional Knowledge

Knowledge Area	Focus
Subject-matter knowledge	Content to teach
Pedagogical knowledge	How to teach
Curricular knowledge	What to teach
Learner knowledge	Whom to teach
Cultural/community knowledge	Sensitivity to settings where one teaches

Content knowledge, the disciplinary understanding of the subject taught, exerts a significant influence on teachers’ classroom behavior. Various studies suggest that teachers with stronger content knowledge are more likely to use practices that can help students construct and internalize knowledge, such as:

- Asking higher-level questions.
- Encouraging students to explore alternative explanations.
- Involving students in more inquiry-based learning.
- Allowing more student-directed activities.

- Engaging students in the lessons.²

Many researchers have explored the impact of teachers’ content knowledge on student achievement. They have measured teachers’ content knowledge through tallying coursework taken by the teachers and administering questionnaires or classroom observations. The literature has been consistent in the findings about the positive association between teacher content knowledge and students’ learning at all grade levels, particularly in mathematics.³

Research has found that when a teacher’s subject-matter knowledge is insecure (for instance, when a teacher is teaching unfamiliar areas of curriculum) his/her ability to give appropriate and effective explanations in the classroom is limited, rendering them ineffective.⁴ Teachers who lack subject-matter knowledge usually lack confidence in the classroom, which in turn, has significant impact on their planning and teaching. For instance, they are more likely to adopt closed and constrained pedagogy – developing the pedagogy to a more discursive style, keeping a tighter rein on what is taught, avoiding asking open-ended questions and conducting discussion sessions, and being more authoritative in what they plan and do in the classroom.

Effective teaching requires teachers to have not only sufficient knowledge in their own fields, but also an interdisciplinary understanding that ranges across multiple branches of human knowledge. The real world does not completely organize itself according to the disciplines or the traditional school subjects. Many phenomena cannot be adequately understood solely from one disciplinary perspective.⁵ Making connections

Georgia Department of Education Teacher Keys Effectiveness System

across subject areas is an effective way to engage students in challenging, integrated, and exploratory learning around personal and social concerns that appeal to them. In addition, the integration of disciplines can prompt students to learn to think critically and develop a common core of knowledge necessary for success.⁶ Effective teachers use a wide variety of sources and make meaningful connections to sustain students' inquiry across disciplines.

Effective teaching resides not simply in the knowledge a teacher has accrued, but also in how this knowledge is translated into student learning in classrooms.⁷ For instance, teachers who are highly proficient in mathematics or writing will help others learn mathematics or writing only if they are able to use their own knowledge to enact learning activities that are appropriate to students. Therefore, a teacher's subject matter knowledge and pedagogical knowledge are complementary and interdependent. These two knowledge categories can be synthesized by what Shulman called "pedagogical content knowledge," which he defined as "the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction."⁸

The professional knowledge of effective teachers reaches beyond merely the knowledge of subject matter (content knowledge) and instructional strategies (pedagogical knowledge); indeed, professional knowledge also encompasses an understanding of students and environmental contexts.⁹ Effective teachers often use the knowledge of their students (for instance, knowledge of students' learning ability, prior achievement, cultural background, and personal interests) to decide what to teach and how to teach. Based on this expansive knowledge, teachers can anticipate the conceptions, misconceptions, and possible difficulties their

students are likely to encounter while learning particular content.

Research has found that an effective teacher:

- Possesses a great deal of knowledge about the content and curriculum areas taught, and knows how the material fits into the educational landscape.¹⁰
- Is certified in his or her field, resulting in higher levels of student achievement on standardized tests.¹¹
- Determines and teaches the essential knowledge and skills through effective instruction.¹²
- Cares about students as individuals and makes them feel valued.¹³
- Adapts teaching to address student learning styles.¹⁴
- Acknowledges his or her perspective and is open to hearing their students' worldviews.¹⁵
- Is culturally competent.¹⁶
- Seeks to know about the cultures and communities from which students come.¹⁷

Sample Performance Indicators for the Professional Knowledge of Teachers

- Addresses appropriate curriculum standards and integrates key content elements.
- Implements students' use of higher-level thinking skills in instruction.
- Demonstrates ability to link present content with past and future learning experiences, other subject areas, and real-world experiences and applications.
- Demonstrates accurate, deep, and current knowledge of subject matter.
- Exhibits pedagogical skills relevant to the subject area(s) taught and best practices based on current research.
- Bases instruction on goals that reflect high expectations for all students and a clear understanding of the curriculum.

Georgia Department of Education Teacher Keys Effectiveness System

- Displays an understanding of the intellectual, social, emotional, and physical development of the age group.

Sample Student Evidence that Teacher met the Criteria for Proficiency

- Observe (through surveys and conversations) that teachers help them understand rather than judge them for misconceptions.
- Grasp the meaning as well as the facts of the content they are learning.
- Recognize and discuss issues related to the content area.
- Acknowledge the teacher's efforts to make the curriculum challenging, relevant, and rewarding for all learners.
- Perform tasks that are varied and appropriate for all learning levels.
- Engage in learning activities that lead to most students achieving standards and some exceeding them.
- Engage in projects, essays, and research that relate to content areas to real life experiences.
- Explain how major concepts in content areas relate.

Sample Conference Prompts

- When did you have to teach a complex concept the year? How did you ensure that all students understood and grasped the concept that you were teaching?
- How did you develop your unit plans and decide what to include or exclude from the unit of study?
- How have you worked to expand your understanding of the issues in your content area this year?
- What collaborative planning experiences have you participated in this year?
- How have you worked with your colleagues this year to ensure vertical alignment?
- How have you worked with your colleagues this year to ensure that there has been

consistency and fairness across the course in different classrooms?

- What are your expectations and the appropriate learning outcomes for the grade level/subject matter you teach? How did the results at the end of the year compare with the expectations you held and the results you anticipated at the beginning of the year?
- What are some ways that you added relevance to the curriculum and helped students make real-world connections?

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- ²Weiss, I. R., & Miller, B. (2006, October). *Deepening teacher content knowledge for teaching: A review of the evidence*. Retrieved May 10, 2009, from http://hub.mspnet.org/media/data/WeissMiller.pdf?media_00000002247.pdf.; Wenglisky, H. (2000). *How teaching matters: Bringing the classroom back into discussion of teacher quality*. Princeton, NJ: Millikan Family Foundation and Educational Testing Service.
- ³Harris, D. N., & Sass, T. R. (2007). *Teacher training, teacher quality and student achievement*. Washington, DC: National Center for Analysis of Longitudinal Data in Education Research. Retrieved April 4, 2009, from www.caldercenter.org/PDF/1001059_Teacher_Training.pdf.; Hill, H. C., Rowan, B., & Ball, D. L. (2005); Rowan, B., Chiang, F., & Miller, R. J. (1997); Moats, L. C., & Foorman, B. R. (2003). Measuring teachers' content knowledge of language and reading. *Annals of Dyslexia*, 53, 23-45.
- ⁴Childs, A., & McNicholl, J. (2007). Investigating the relationship between subject content knowledge and pedagogical practice through the analysis of classroom discourse. *International Journal of Science Education*, 29(13), 1629-1653.
- ⁵Case, R. (1991). The anatomy of curricular integration. *Canadian Journal of Education*, 16(2), 215-224.
- ⁶Czerniak, C. M., Weber, W. B., Sandmann, A., & Ahern, J. (1999). A literature review of science and mathematics

Georgia Department of Education Teacher Keys Effectiveness System

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⁸Schulman, L. S. (1987).

⁹Cochran, K., DeRuiter, L., & King, R. (1993).

¹⁰Educational Review Office. (1998). *The capable teacher*. Retrieved January 19, 2002, from <http://www.ero.govt.nz/Publications/eers1998/98no2hl.html>.

¹¹Educational Testing Service.(n.d.).*ETS Poll: Americans willing to pay for teacher quality, still demand standards and accountability*.

¹²Langer, J. (2001). Beating the odds: Teaching middle and high school students to read and write well. *American Educational Research Journal*, 38 (4), 837-880.

¹³Peart, N. A., & Campbell, F. A. (1999).At-risk students' perceptions of teacher effectiveness. *Journal for a Just and Caring Education*, 5(3), 269-284.

¹⁴Covino, E. A., &Iwanicki, E. (1996).Experienced teachers: Their constructs on effective teaching. *Journal of Personnel Evaluation in Education*, 11, 325-363.

¹⁵McAllister, G., & Irvine, J. J. (2000). Cross cultural competency and multicultural teacher education. *Review of Educational Research*, 70(1), 3-24.

¹⁶Cruikshank, D. R., & Haefele, D. (2001). Good teachers, plural. *Educational Leadership*, 58(5), 26-30.

¹⁷Weinsten, C., Curran, M., & Tomlinson-Clarke, S. (2003). Culturally responsive classroom management: Awareness into action. *Theory Into Practice*, 42(4), 269-276.

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Teacher Keys Effectiveness System**

**Teacher Self-Assessment Checklist
Performance Standard 1: Professional Knowledge**

Quality		Level IV	Level III	Level II	Level I
Subject-matter Knowledge	Have accurate, cohesive, and in-depth subject-matter knowledge.				
	Possess a coherent body of knowledge about the facts, concepts, principles, methodology, and important generalization of the subject areas taught.				
	Make interdisciplinary connections across subject areas to engage students in challenging, integrated, and exploratory learning.				
Curricular Knowledge	Know the school district curriculum guides and benchmarks.				
	Understand the scope and sequence of learning goals and objectives.				
	Develop appropriate curriculum guides and set up outlines for unit plans.				
	Be able to perceive the gap between planned curriculum and received curriculum.				
Pedagogical Knowledge	Choose the most effective pedagogical strategies that can best communicate subject content.				
	Design and organize learning activities that are appropriate for learners of different interests and abilities to explore the topics, problems, or issues.				
	Exhibit instructional practices that are supported by current research.				
Learner Knowledge	Have an understanding of special education and gifted education.				
	Relate subject-matter to the personal and social concerns that appeal to the learners.				
	Know students as individuals regarding their learning abilities, prior achievement, cultural background, and personal interests.				
	Anticipate the conceptions, misconceptions, and possible difficulties the students are likely to have when learning particular content area.				