

# Continuous Professional Development of School Teachers: Extension, Possibilities and Alternatives

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**Abstract – Professional development for teachers should be analogous to professional development for other professionals. Becoming an effective education teacher is a continuous process that stretches from pre-service experiences in undergraduate years to the end of a professional career.**

**Science has a rapidly changing knowledge base and expanding relevance to societal issues, and teachers will need ongoing opportunities to build their understanding and ability. Teachers also must have opportunities to develop understanding of how students with diverse interests, abilities, and experiences make sense of scientific ideas and what a teacher does to support and guide all students. And teachers require the opportunity to study and engage in research on education teaching and learning, and to share with colleagues what they have learned.**

**Keywords: Continuous, Education, Teacher**

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## INTRODUCTION

The current reform effort in education requires a substantive change in how education is taught. Implicit in this reform is an equally substantive change in professional development practices at all levels. Much current professional development involves traditional lectures to convey education content and emphasis on technical training about teaching. For example, undergraduate education courses typically communicate education as a body of facts and rules to be memorized, rather than a way of knowing about the natural world; even the education laboratories in most colleges fail to teach education as inquiry.

Moreover, teacher-preparation courses and in-service activities in methods of teaching education frequently emphasize technical skills rather than decision making, theory, and reasoning. If reform is to be accomplished, professional development must include experiences that engage prospective and practicing teachers in active learning that builds their knowledge, understanding, and ability.

The understanding and abilities required to be a masterful teacher are not static. Science content increases and changes, and a teacher's understanding in education must keep pace. Knowledge about the process of learning is also continually developing, requiring that teachers remain informed. Further, we live in an ever-changing society, which deeply influences events in schools; social changes affect

students as they come to school and affect what they need to carry away with them. In addition, teachers must be involved in the development and refinement of new approaches to teaching, assessment, and curriculum.

Teachers of education build skills gradually, starting in their undergraduate years, where they engage in education and gain some experience in teaching. They then experience the realities of their first years in the classroom, work with other teachers, take advantage of professional development offerings, and learn from their own efforts and those of their colleagues. This gradual development has several implications—the transition between the education of prospective and practicing teachers is a case in point.

The primary responsibility for the early stages of pre-service education rests with colleges and universities, but it must be shared with the practice community as prospective teachers begin their clinical work. For in-service education, the practice community has the major responsibility, drawing upon the resources of higher education, education-rich centers, and the scientific community.

One of the most serious questions in education is what education a teacher needs to know. What does it mean to know a lot or a little, have a sound foundation, and have in-depth understanding? The criteria of credit hours that states, professional

organizations, and higher education institutions use to prescribe content requirements are inadequate indicators of what is learned in a course.

## **CONTINUOUS PROFESSIONAL DEVELOPMENT OF SCHOOL TEACHERS: EXTENSION, POSSIBILITIES AND ALTERNATIVES**

Breadth implies a focus on the basic ideas of education and is central to teaching education at all grade levels. Depth refers to knowing and understanding not only the basic ideas within an education discipline, but also some of the supporting experimental and theoretical knowledge. The ways ideas interconnect and build upon each other within and across content areas are other important aspects of the depth of understanding. The depth of understanding of education content required varies according to the grade level of teaching responsibility.

Teachers of grades K-4 usually are generalists who teach most, if not all, school subjects. A primary task for these teachers is to lay the experiential, conceptual, and attitudinal foundation for future learning in education by guiding students through a range of inquiry activities. To achieve this, elementary teachers of education need to have the opportunity to develop a broad knowledge of education content in addition to some in-depth experiences in at least one education subject. Such in-depth experiences will allow teachers to develop an understanding of inquiry and the structure and production of knowledge.

That knowledge prepares teachers to guide student inquiries, appraise current student understanding, and further students' understanding of scientific ideas. Although thorough education knowledge in many areas would enhance the work of an elementary teacher, it is more realistic to expect a generalist's knowledge.

Teacher experiences go into greater depth, are more quantitative, require more sophisticated reasoning skills, and use more sophisticated apparatus and technology. These requirements of the education courses change the character of the conceptual background required of middle level teachers of education. While maintaining a breadth of education knowledge, they need to develop greater depth of understanding than their colleagues teaching grades K-4. An intensive, thorough study of at least one scientific discipline will help them meet the demands of their teaching and gain appreciation for how scientific knowledge is produced and how disciplines are structured.

At the secondary level, effective teachers of education possess broad knowledge of all disciplines and a deep understanding of the scientific disciplines they teach. This implies being familiar enough with a education

discipline to take part in research activities within that discipline.

Teachers must possess the skills necessary to guide inquiries based on students' questions. An important test of the appropriate level of understanding for all teachers of education at all levels is the teacher's ability to determine what students understand about education and to use this data to formulate activities that aid the development of sound scientific ideas by their students.

Teachers of education will be the representatives of the education community in their classrooms, and they form much of their image of education through the education courses that they take in college. If that image is to reflect the nature of education as presented in these standards, prospective and practicing teachers must take education courses in which they learn education through inquiry, having the same opportunities as their students will have to develop understanding.

College education faculty therefore must design courses that are heavily based on investigations, where current and future teachers have direct contact with phenomena, gather and interpret data using appropriate technology, and are involved in groups working on real, open-ended problems. Those education courses must allow teachers to develop a deep understanding of accepted scientific ideas and the manner in which they were formulated. They must also address problems, issues, events, and topics that are important to education, the community, and teachers.

## **DISCUSSION**

Learning education through inquiry should also provide opportunities for teachers to use scientific literature, media, and technology to broaden their knowledge beyond the scope of immediate inquiries. Courses in education should allow teachers to develop understanding of the logical reasoning that is demonstrated in research papers and how a specific piece of research adds to the accumulated knowledge of education. Those courses should also support teachers in using a variety of technological tools, such as computerized databases and specialized laboratory tools.

Courses and other activities include ongoing opportunities for teachers to reflect on the process and the outcomes of their learning. Instructors help teachers understand the nature of learning education as they develop new concepts and skills. Those who teach education must be attentive to the scientific ideas that teachers bring with them, provide time for learning experiences to be shared, and be knowledgeable about strategies that promote and encourage reflection.

Science faculty also need to design courses for prospective and practicing teachers that purposely engage them in the collaborative aspects of scientific inquiry. Some aspects of inquiry are individual efforts, but many are not, and teachers need to experience the value and benefits of cooperative work as well as the struggles and tensions that it can produce.

Effective education teaching is more than knowing education content and some teaching strategies. Skilled teachers of education have special understandings and abilities that integrate their knowledge of education content, curriculum, learning, teaching, and students. Such knowledge allows teachers to tailor learning situations to the needs of individuals and groups.

Assessment is an important tool for good inquiry into teaching. In the daily operation of their classrooms, skilled teachers of education are diagnosticians who understand students' ideas, beliefs, and reasoning. Effective teachers are knowledgeable about the various educational purposes for assessment and know how to implement and interpret a variety of assessment strategies.

Developing pedagogical content knowledge of education requires that teachers of education have the opportunity to bring together the knowledge described above and develop an integrated view of what it means to teach and learn education.

In the vision described by the *Standards*, teachers also develop concepts and language to engage in discourse with their peers about content, curriculum, teaching, learning, assessment, and students.

The development of pedagogical content knowledge by teachers mirrors what we know about learning by students; it can be fully developed only through continuous experience. But experience is not sufficient.

## CONCLUSION

Teachers also must have opportunities to engage in analysis of the individual components of pedagogical content knowledge—education, learning, and pedagogy—and make connections between them.

In this vision, people responsible for professional development work together with each other and with teachers as they integrate their knowledge and experiences. For example, higher education and education faculty must learn to work together: An instructor in a university education course might invite a member of the education faculty to participate in regular discussion time designed to help students reflect on how they came to learn education concepts.

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