Contexts of mentoring and opportunities for learning to teach: a comparative study of mentoring practice

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Abstract

Drawing on data from twenty-three US, UK, and Chinese mentor teachers, this study explores the relationship between contexts of mentoring and mentoring practice. It discusses learning opportunities created by mentoring in different contexts for novices to learn to teach. Through comparative analysis, it finds that mentoring practices show greater differences across programs and countries than within. This is the case even when mentors are practicing or moving toward practicing a kind of teaching as expected by education reformers. These differences are reflected in mentors' beliefs about what novices need to learn, their interaction patterns and foci with novices. Three instructional contexts in each setting shape such differences: structure of school curriculum and assessment, organization of teaching and mentoring, and student population. These findings suggest that the reform-minded teaching practice that mentors developed does not necessarily guarantee the effective mentoring that supports teacher learning and teaching reform. Teacher educators should pay attention to the influences of instructional contexts on mentoring and the kinds of learning opportunities that mentoring creates for novice teachers in different contexts. When designing mentoring programs and arranging mentoring relationships, teacher educators need to consider how to restructure school contexts and help mentors learn how to mentor. © 2000 Elsevier Science Ltd. All rights reserved.

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They (novices) are focused on what they are doing rather than what students are doing. Maybe that is one of the things they need to learn, maybe the most important thing . . . They sincerely want to understand children, they just misread a lot of cues and things that children give them (Kate, a US elementary mentor).[1]

I welcome the interns to say things . . . as opposed to being there (in the department), like observers. I want them to be parts of the department (Ned, a UK middle school geography mentor).

I think that she (her novice) should first understand the requirements of textbook for teaching reading, speaking, and writing. It is very important for her to know how to reach these requirements (Zhen, a Chinese elementary language arts mentor).

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[1] All the names of participants and schools used here or in the other places of this paper are pseudonyms.

Kate, Ned, and Zhen are all experienced teachers who are practicing or moving toward practicing a kind of teaching with a focus on students' conceptual understanding of the subject. They are all mentors who are assigned to help their novices learn to teach. However, they work in different contexts and differ clearly in their ideas about what novices need to learn. Kate emphasizes the importance of understanding children. Ned believes that it is important for his novice to adapt to the culture of the department. Zhen requires her novice to develop an understanding about the curriculum standards and textbook.

Is the difference among mentors in defining what novices need to learn only a matter of personal preference or is the difference shaped by the unique instructional contexts in which they teach and mentor? Do mentor teachers in different contexts also develop different mentoring practice? In brief, what is the relationship between mentoring practice and instructional context? These questions deserve careful exploration, if different beliefs that mentors hold about novices' learning influence what they do in mentoring and different mentoring practices open different opportunities for novices to learn to teach. This study explores these questions by drawing on data from twenty-three US, UK, and Chinese mentors from both induction and preservice programs and different levels of schools.

1. Mentoring and instructional contexts

Since the 1980s, education reformers have been advocating a kind of teaching that focuses on student conceptual understanding of subject matter and puts student active learning at the center (Cohen, McLaughlin, & Talbert, 1993). Such teaching emerges from the curriculum and teaching standards developed for different subject areas by various professional organizations (National Council for the Social Studies, 1994; National Council of Teachers of English and the International Reading Association, 1996; National Council of Teachers of Mathematics, 1989; National Research Council, 1996). These standards have redefined the meaning of good teaching and are being incorporated into the curriculum guidelines at the district and state levels.

Research suggests that to learn to teach in this way, teachers need opportunities to develop a strong commitment toward the reform-minded teaching (Cochran-Smith, 1991) and a deeper understanding of what they teach (Ball & McDiarmid, 1989). They need to know how to transform their subject knowledge for the purposes of teaching (Shulman, 1986) and connect such knowledge to students with diverse backgrounds (Kennedy, 1991). In addition, it is important for them to learn how to conduct the kind of reflection that supports their continuous learning about teaching (Schon, 1987).

Teacher education reformers regard the mentor–novice relationship in the context of teaching as one of the important strategies to support novices' learning to teach and, thus, to improve the quality of teaching (Holmes Group, 1986; Holmes Group, 1990). Teacher educators in the US have been developing mentoring programs at both preservice and induction levels to support novices' learning to teach (Odell, Huling, & Sweeny, 1999). It is expected that this mentor–novice relationship will open the chance for novice teachers to understand the relationship between teaching situations and principled knowledge of teaching (Kennedy, 1997). With the assistance of experienced teachers, novices will have an opportunity to learn to "teach against the gain" (Cochran-Smith, 1991) and to form a base for their continued professional development (Feiman-Nemser & Buchmann, 1987). An implicit assumption underlying such a strategy is that "experienced teachers" can be an active variable in novices' learning to teach and, in the end, support the reform of teaching.

The promise of mentoring to offer such opportunities for novice teachers resides in the nature of the mentor–novice relationship and its consistency with the social–cultural perspective of learning (Feiman-Nemser & Remillard, 1996). First, according to this social–cultural perspective of learning, all knowledge and theories are situated in and grow out of the contexts of their use (Brown, Collins, & Duguid, 1989). The expertise of experienced teachers is richer than that of novices, because it is based upon elaborated structures derived from

their contextualized classroom experiences (Carter, 1990) and, thus, more likely fits into their teaching contexts (Sternberg & Horvath, 1995). Second, the social–cultural perspective stresses that the support of an experienced person is crucial for a novice to learn something at the level beyond his or her independent exploration (Vygotsky, 1978). Experienced teachers are able to help novice teachers learn teaching skills that novices cannot develop by themselves alone (Tharp & Gallimore, 1988).

Although it has been well documented that mentor teachers have a strong influence on novice teachers' teaching (Guyton & McIntyre, 1990; McIntyre, Byrd, & Fox, 1996), such an influence can be context related and different in quality. One study on a preservice program (Winograd, Higgins, McEwan, & Haddon, 1995) showed that even when mentors were teaching in the way expected by teacher educators, what they did in their mentoring was simply to provide technical and practical support for their novices. They paid little attention to helping their novices in critiquing existing routines and practice, discussing alternative ways to structure a lesson, or reflecting on the theory and rationale underlying instruction. A comparative analysis of two US induction mentoring programs (Feiman-Nemser & Parker, 1992) showed that in two mentoring programs with different goal orientations and structures, mentors assumed different roles in working with novices. Mentors from one program played the role of local guide in their mentoring and were committed to socializing novice teachers into the existing culture and practice of their school. Mentors from the other program assumed the role of educational companions, who helped novices develop reasons for action, uncover causes for student learning, and identify ideas behind teaching. Consequently, they opened different opportunities for novices' learning. A review of mentoring phenomena (Little, 1990a) indicates that under the individualist culture of teaching, mentors are hesitant to offer suggestions to their novices and they worry about intruding into the autonomy of their novices.

These studies point to two assumptions that guide the design of this study. First, to be a reform-minded teacher may not necessarily allow one to become an effective mentor who is able to create

the necessary learning opportunities for novices to learn to teach in the same direction. Second, the contexts in which mentors work may have a significant impact on their beliefs and practices of mentoring. Although the research suggests that teachers' ideas and practices of teaching are strongly shaped by the nature of curriculum available to them (Cohen & Spilane, 1992; Schmidt, McKnight, & Raizen, 1996), the organization of their work (Feiman-Nemser & Floden, 1986; Lieberman & Miller, 1991; Little, 1990b), and the features of student population (Anyon, 1981; Metz, 1993), we know little about the conceptual and practice differences in mentoring among mentors who work in different situations. Few empirical studies have been developed to understand the relationship between mentoring practices and the contexts of teaching and mentoring. We especially need knowledge about the relationship between mentoring practice and instructional context when mentors are practicing the kind of teaching encouraged by professional organizations. With proper and deeper understanding about these issues, teacher educators will be able to consider contextual influences in designing their mentoring programs and arranging mentor–novice relationships. Therefore, they will be better able to support novice teachers as they learn to teach. This cross-national comparative study explores the relationship between the contexts of teaching and mentoring and mentoring practices and addresses the impacts of such a relationship on the opportunities for novices to learn to teach.

2. Methodology

2.1. Participants and sites

The participants of this study were twenty-three mentors working in different programs and schools in the US, the UK, and China. The twelve US mentors came from three regions. Four of them worked with an induction program in different schools in the South. Among the four, two were elementary mentors and two were middle school mentors who taught social studies and mathematics, respectively. Eight US mentors worked in

preservice programs. Two were elementary mentors working in different schools in the East. Six were from the Midwest, and worked for the same preservice program. Among them, two taught in an elementary school and four taught in a high school. The four UK mentors worked with a preservice program in a suburban area and they were from different middle schools. The seven Chinese mentors came from three induction programs in an urban city. Four of them taught in different elementary schools. Three worked in a normal school[2] (see Tables 1–3 for more participant details).

I chose to compare these mentors and their ideas and practices of mentoring because of the contextual variations across the settings where they worked. These contextual differences provide the opportunity to address the research questions.

First, the different structures of curriculum and assessment at the national level provide an opportunity to identify the relationship between mentoring and the instructional contexts in different countries. The curriculum and assessment system in China is centralized (Eckstein & Harold, 1993; Wang, 1998). In contrast, the US curriculum and assessment system is decentralized with clear variations from one place to another (Eckstein & Harold, 1993; Cohen & Spilane, 1992). The UK curriculum and assessment system is moving toward central control (Eckstein & Harold, 1993; Hargreaves, 1994). Such a national level of comparison also presents useful data for teacher educators to analyze the impact of emerging instructional contexts on mentoring and teacher learning in each country. In the US and UK, there is a strong push for curriculum and assessment centralization at the state and national level. Curriculum and assessment decentralization is the trend of educational reform in China.

Second, the different kinds and structures of programs within which these mentors worked allow an examination of various relationships between mentoring practice and context at the program level. Each mentor of this study worked in either an induction or a preservice program and within each level of program, the responsibilities of mentors were structured differently. The US induction mentors were each released from teaching duty to work full time with several beginning teachers in different schools. However, the Chinese induction mentors each worked with only one beginning teacher, who taught at the same grade level in the same school as the mentors. The US preservice mentors were each assigned to work with one student teacher, who were in the mentor's class for most of the day, while the UK preservice mentors each worked with a student teacher who was required to teach not only in the mentor's classroom but also in other teachers' classrooms. Such differences permit some understanding about the influences of different program structures on mentoring.

Third, the contextual differences at the school level where these mentors worked helps identify the relationship between mentoring practices and school instructional contexts. Not only did the mentors of this study work in different levels of schools (elementary, middle or high schools), but they also had different tasks and they were organized to teach differently within the same level of school. The US elementary mentors were generalists who had to teach all the major subjects in one class, while the Chinese elementary mentors were subject specialists who taught the same subject in two or more classes of the same grade level. The Chinese teachers taught two big classes and then spent their time working together with other teachers in their teaching research group. This suggests a collaborative working structure (Paine, 1997). The US teachers were organized to stay in their own classrooms for most of the day with their students, which strongly reflects an individualist organization of their work (Lieberman & Miller, 1991). However, the organization of the UK teachers' work was moving from individualism toward more collaboration. In addition to teaching in their classrooms, the UK teachers had to work together to develop specific curriculum materials at

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[2] The normal school is a special kind of high school in China that draws students from junior secondary schools based upon their test scores in the textbook-based junior secondary school graduation examination at the provincial level. These students are educated to be elementary teachers in the normal schools where they study both general secondary courses like those of high school and teacher education courses. They are assigned a job by the government to teach at the elementary level when they graduate.

the school level to meet the requirements of the national curriculum (Hargreaves, 1994).

Besides the contextual differences, I also chose to study these mentors and their practices because of similarities among them. First, all these mentors had several years of experience teaching at their particular school sites, and they were also practicing or moving toward practicing the kind of teaching that focused on student conceptual understanding (Cohen et al., 1993). Second, none of these mentors received formal training for mentoring except for a one-day or two-day workshop in the US and the UK settings. These similarities allowed me to identify and analyze the contextual influences on mentoring practice when mentors develop substantial knowledge of the teaching contexts, are committed to reform-minded teaching, and receive little training for mentoring.

Although participants of this study came from three countries, there is no suggestion here that they are "typical" mentors who were conducting "representative" mentoring practices in these countries. Instead of generalizing findings of this study to all the mentoring situations in each country, I use them to illustrate some of the ways in which different contexts can influence mentoring practices and to ask questions about the potentials and limitations that these contexts provide in the process and quality of mentoring and learning to teach.

2.2. Data and methods

The data of this study come from a cross-national longitudinal research project, *Learning from Mentors*, at the National Center for Research on Teacher Learning (NCRTL), in which I worked as a research assistant translating, coding, and analyzing the data. The data include interviews with each mentor, logs of mentor–novice interactions, and documents of each program and school system.

The interview data come from two semi-structured interviews designed by the researchers of the NCRTL mentoring project. The first was an autobiographical interview including questions about each mentor's general schooling experiences, how he or she became a teacher, and his or her views of teaching and learning to teach. The second was a learning-to-teach interview, which covered questions about how he or she became a mentor, his or her school contexts, and his or her mentoring practice. The researchers and collaborating researchers of the NCRTL mentoring project conducted both interviews with each mentor. The collaborating researchers were researchers or teacher educators living in the area where our participants worked but not a part of the mentors' institutions. For the purposes of this study, only some parts of the data in the interviews were used. They include each mentor's answers to the following questions: "What are some of the most important things that your novice needs to learn?" "Why is that important?" and probing questions that followed. These interview data were coded and analyzed to capture the beliefs that these mentors held about what novices needed to learn and the patterns of their beliefs.

The logs were forms designed by the researchers of the NCRTL mentoring project to be filled out by each mentor and novice in the first week of each month during their mentoring program. Each mentor and novice recorded the topics, length, time, and places of mentor–novice daily interactions in these weeks on the log forms. The data from the log forms were coded and calculated to reveal two aspects of mentoring practice in each setting: first, the patterns of mentoring practice including the length, frequency, number of topics of their interactions and the places where their interactions occurred; and second, the foci of mentoring practice covering the different kinds of topics and the frequency of each topic discussed in mentor–novice interactions in each setting.

The school and program documents used in this study included the school yearly reports, curriculum guides, and other program information collected by the researchers and collaborating researchers of the NCRTL mentoring project in each site. These data along with some of the interview data on the school context were analyzed to illuminate the features of instructional contexts in each setting.

In the rest of this paper, I discuss the findings on mentors' beliefs about what novices need to learn, and the patterns and foci of their interactions with novices in the different countries and program settings. Following each set of findings, I identify the features of teaching and mentoring contexts in

the various settings and analyze their influences on the ideas that mentors developed about what novices needed to learn, and on the patterns and foci of the mentor–novice interactions. I conclude this paper by discussing the learning opportunities that novices had in each setting and pointing out the implications of this study for further research and policy on mentoring.

3. Contexts and mentors' beliefs about novices' learning

3.1. Mentors' beliefs about what novices should learn in each setting

Mentors bring different goals and purposes to their mentoring. These goals and purposes could lead them to act differently in their mentoring practice, and thus open different opportunities for novice learning about teaching.

As shown in Table 1, the US mentors individually held different ideas about what their novices needed to learn. Such differences show up in the number and kinds of things they expected their novices to learn. However, the US mentors to some extent also shared several beliefs about what novices needed to learn.

First, although working in different levels of program, different grades, and regions, almost all the US mentors agreed that their novices should develop an understanding about student diversity and learning. Not only did they share this belief about their novices' learning to teach, but many of them also agreed on the reasons for this idea.

Some mentors claimed that children came to school with different learning styles and habits. It was hard for novices to teach effectively if they failed to develop a proper understanding about these differences. As the elementary mentor, Emma, said:

> Most importantly, children learn in different ways. And if they are not learning, maybe it is because you haven't found the way that they learn best.... Even though you want to teach them something right now, maybe they are just not ready for that.

Others assumed that a diverse student population in a school better represented the actual teaching situation that novices would face in the future. The lack of ethnic and cultural diversity was a serious impediment for novices' learning because it narrowed their vision of actual teaching practice. The high school mathematics mentor, Mark, commented:

> One drawback that I think we have here at Rite High School is that we do not have a lot of minorities. So we don't have cultural differences... It gives student teachers a very narrow view of what a classroom is going to be like.

Second, two ideas of what novices needed to learn were shared by four US mentors. One of the ideas was that novices should develop their own philosophy of teaching. Those mentors who held this idea were from both induction and preservice programs and worked in both elementary and middle schools. Nicole, an elementary mentor, described this idea in the following way:

> It is important to have a belief system and philosophy to work for. I think the work I give to you is my philosophy. A teacher's (novice's) philosophy may be different from mine. But you have got to have something to make your choice and your decision about what you are doing regarding curriculum.

Another idea was that novices needed to develop teaching styles and ideas different from mentors. Mentors who held this belief about novices' learning to teach were also from different levels of programs and schools. The high school science mentor, Beth, said:

> Another big thing, I think, for student teachers to learn and that's hard, is breaking the mold, breaking the cycle ... I was more of a deliverer and I delivered information ... and I would rather see them become more facilitators.

Third, some US mentors also shared the idea that novices needed to know their subject matter and curriculum. However, the curriculum and

Table 1
The US mentors' beliefs about what novices need to learn

Type of program	School level	Mentor and subject area	Important things for novices to learn held by each mentor	Mentors who hold each idea
Induction program	Elementary School	Nicole	1. Understand students and their differences 2. Develop purposes or philosophy for teaching 3. Cooperate with other teachers 4. Stay current about the research 5. Use new technology	Nicole, Sandy, Margie, Alex, Emma, Kate, Clara, Mark, Sally, Paul, and Beth: Understand students and their differences
		Alicia	1. Develop purposes or philosophy for teaching 2. Be self-confident 3. Adjust to the role of a teacher	Nicole, Alicia, Margie, and Clara: Develop purposes or philosophy for teaching
	Middle School	Sandy (Social Studies)	1. Understand students and their differences 2. Cooperate with other teachers 3. Treat students equally and with integrity 4. Adjust to the role of a teacher	Margie, Emma, Kate, and Beth: Be open to different ideas and ways of teaching
		Margie (Mathematics)	1. Understand students and their differences 2. Develop purposes or philosophy for teaching 3. Be open to different ideas and ways of teaching	Nicole, Sandy, and Mark: Cooperate with other teachers
Preservice Program	Elementary School	Alex	1. Understand students and their differences 2. Know about subject matter and curriculum 3. Manage class time well 4. Discipline students with respect	Alex, Mark, and Sally: Know about subject matter and curriculum
		Emma	1. Understand students and their differences 2. Be open to different ideas and ways of teaching	Alex and Beth: Manage class time well

Table 1 (continued)

Type of program	School level	Mentor and subject area	Important things for novices to learn held by each mentor	Mentors who hold each idea
		Kate	1. Understand students and their differences 2. Be open to different ideas and ways of teaching	Sandy and Paul: Treat students equally and with integrity
		Clara	1. Understand students and their differences 2. Develop purposes or philosophy for teaching	Alicia and Mark: Be self-confident
	High School	Mark (Mathematics)	1. Understand students and their differences 2. Know about subject matter and curriculum 3. Cooperate with other teachers 4. Be self-confident	Alicia and Sandy: Adjust to the role of a teacher
		Sally (Mathematics)	1. Understand students and their differences 2. Know about subject matter and curriculum	Alex: Discipline students with respect
		Beth (Science)	1. Understand students and their differences 2. Be open to different ideas and ways of teaching 3. Manage class time well	Nicole: Stay current about the research Use new technology
		Paul (Social Studies)	1. Understand students and their differences 2. Treat students equally and with integrity	

subject matter knowledge for these US mentors, although important, were subject to "more creative" individual teaching styles and different ways of students' learning. As Sally, a high school mathematics mentor, described:

If you really respect that kids are making sense of a thing, your job is to see how they are making sense of it (subject matter) and interact with them about that, so the subject matter knowledge grows automatically.

Some US mentors also emphasized that novices should learn how to cooperate with other teachers.

They regarded cooperation as necessary because novices needed to learn where and how to get support when facing problems and difficulties in teaching.

The four UK mentors also had varied responses when asked about the important things that novices needed to learn. However, it was not difficult to identify the shared ideas among the UK mentors, in spite of the fact that these mentors taught different subjects and worked in different schools (see Table 2).

One idea shared by three UK mentors was that novices should learn to adapt to the department culture and its way of doing things. For example,

Table 2
The UK mentors' beliefs about what novices need to learn

Program	School level	Mentor and subject area	Important things for novices to learn noted by each mentor	Mentors who hold each idea
Preservice program	Middle School	Jenny (Geography)	1. Develop knowledge of students and their differences 2. Observe other teachers' teaching and learn from them 3. Be an independent thinker	Ned, Selena, and Bill: Adapt to departmental culture and ways of doing things
		Ned (Geography)	1. Adapt to departmental culture and ways of doing things 2. Be flexible to different teaching situations	Jenny and Bill: Observe other teachers' teaching and learn from them
		Selena (Mathematics)	1. Adapt to departmental culture and ways of doing things 2. Treat students equally and with integrity 3. Develop personality that kids can relate to	Jenny and Bill: Develop knowledge of students and their differences
		Bill (Mathematics)	1. Adapt to departmental culture and ways of doing things 2. Develop knowledge of students and their differences 3. Observe other teachers' teaching and learn from them 4. Know about subject you teach	Selena: Treat students equally and with integrity Develop personality kids can relate to Ned: Be flexible to different teaching situations Jenny: Be an independent thinker

the mathematics mentor, Selena, emphasized that novices should develop those organizational skills that the other teachers in the department developed in their practices. The geography mentor, Ned, also expressed the belief that effective teaching depended mainly upon whether a teacher would be able to "reinvent yourself to teach in the institution (department). And it is not just kids that will be different."

Like their US counterparts, two UK mentors also required their novices to learn how to co-operate with other teachers in the school. However, instead of only seeking assistance from other teachers to solve the problems in teaching, these UK mentors believed that such a collaboration would help novices understand the departmental culture and its way of working. As Bill, a mathematics mentor, described:

Jim (his novice), while he is here, he is part of the department. So he is expected to come to the department meetings, to be involved in any social functions that the department may think of …

He believed that novices "have got to feel what they are doing here is worthwhile and they are not only learning to teach some kids."

Again, like the US mentors, two of the UK mentors stressed that novices should learn to develop knowledge of students and their differences. However, the UK mentors required that novices learn not only to look carefully for these differences, but also to find a balance between students' diversity and the curriculum that they had to teach. In contrast to their US counterparts, they did not see that subject matter and curriculum should be subjected only to "more creative" and individual styles of teaching and different ways of learning for students.

Although there were differences among individuals, the Chinese mentors also shared some beliefs about their novice teachers' learning to teach (see Table 3). First, almost all the Chinese mentors believed that novices should develop a deep understanding about subject matter as represented in the national curriculum guides and textbooks. They emphasized three different reasons for this shared idea and these reasons were different from their US counterparts who held a similar idea.

Some assumed that the serious study of the national curriculum guides and textbooks would help novices develop a deeper understanding about the requirements for their teaching and a shared standard for their work. The Normal School physics mentor, Yi, said:

> Both of us (he and his novice) believed that the following things were very important for teaching. The first was the national curriculum guides, the constitution of teaching. To reach a certain level of teaching, teachers in every school should teach according to these curriculum guides. So we should study them seriously in preparing every lesson.

Some held that the careful study of curriculum guides and textbooks would allow novices to deepen their understanding about important ideas and relationships between different concepts and content in each subject area. For example, the elementary mathematics mentor, Hu, required her novice to study not only the curriculum guides and textbooks for her grade level but also those for all the other elementary grades. She expected that through such a study her novice would develop an understanding about the important concepts for her grade and the relationship of these concepts to the other concepts across different elementary grades.

Other Chinese mentors thought that the study of curriculum guides and textbooks would help novices transform their own understanding of subject matter into the kind of understanding that met specific teaching purposes and needs. The normal school English mentor, Chao, expressed this idea in the following way:

> As a novice, one often makes the mistake of wanting to teach all the knowledge she learned in her college period. However, students always find it hard to accept it. If she mastered the textbook, she would know what are the important things that she should teach and what can be taught gradually.

Second, as a major point of shared concern, many Chinese mentors assumed that novices should develop "appropriate attitudes toward the teaching profession." The elementary mathematics mentor, Hu, said:

> I feel the attitude toward teaching is the most important. Given that a new teacher is good at everything but lacks a serious attitude toward teaching, no matter how much knowledge he or she has, he will not likely teach it well.

The attitudes like "serious about teaching," "loving teaching," "modest" and "hard working spirit" were the main ingredients in the Chinese mentors' talk about the meaning of attitudes. Unlike the US mentors, who encouraged their novices to develop different philosophies of teaching, the Chinese mentors expected novices to be adapted into the culture and norms of the teaching profession. Unlike the UK mentors, who focused on the culture of a particular department, the Chinese mentors thought these norms were universal across different subjects and school settings.

Third, some Chinese mentors also agreed that novices needed to learn to be flexible in using different teaching methods. They thought that this was the most difficult part of their teaching. Like their UK counterparts, they assumed that the kind of teaching methods you were going to use depended upon not only what kinds of students you were teaching but also on the curriculum requirements

Table 3
The Chinese mentors' beliefs about what novices need to learn

Program	School level	Mentor and subject area	Important things for novices to learn noted by each mentor	Mentors who hold each idea
Induction program	Elementary School	Zhen (Language)	1. Know about subject matter and curriculum 2. Develop routines of teaching in classroom 3. Be flexible in using teaching methods	Zhen, Liu, Hu, Chu, Yi and Cai: Know about subject matter and curriculum
		Liu (Mathematics)	1. Know about subject matter and curriculum 2. Understand purpose of teaching practice 3. Develop students' ability	Hu, Chu, Cheng, Yi and Cai: Professional attitudes toward the profession
		Hu (Mathematics)	1. Know about subject matter and curriculum 2. Professional attitudes toward the profession 3. Be a role model for students	Zhen, Cheng and Cai: Be flexible in using teaching methods
		Chu (Science)	1. Know about subject matter and curriculum 2. Professional attitudes toward the profession 3. Develop routines of teaching in classroom	Zhen and Chu: Develop routines of teaching in classroom
	Normal School	Cheng (Language)	1. Professional attitudes toward the profession 2. Be flexible in using teaching methods	Hu and Yi: Be a role model for students
		Yi (Physics)	1. Know about subject matter and curriculum 2. Professional attitudes toward the profession 3. Be a role model for students	Liu: Understand purpose of teaching practices Develop students' ability
		Chao (English)	1. Know about subject matter and curriculum 2. Professional attitudes toward the profession 3. Be flexible in using teaching methods	

and the nature of curriculum content. The elementary mentor, Zhen, described this idea as follows:

They (novices) also need to learn different teaching methods and use them flexibly in their teaching. I think these things are most difficult for them to learn because what teaching methods you are going to use depends upon the requirements of curriculum goals and contents, as well as the time, place and students you are going to teach.

The comparison of the beliefs that mentor teachers in different countries held suggests three findings. First, mentors in a particular country, to different degrees, shared some beliefs about what novices needed to learn, in spite of individual differences. Second, the beliefs that mentors shared most widely in one country were frequently absent or not widely shared among mentors in another country. Third, although some mentors in a country shared some ideas with some mentors in the other countries, they gave different reasons for the same ideas.

3.2. Contextual influences on mentors' beliefs

The observed differences in mentors' beliefs in these countries can be interpreted as an outgrowth of the instructional contexts in which teachers work. In a quantitative study about mathematics teaching, Stevenson and Baker (1991) discovered that when the curriculum was not centrally controlled, teachers' decisions were more likely to be related to individual teachers' preferences and students' characteristics. Under the centrally controlled curriculum, teachers' decisions were more likely to be associated with curriculum standards and requirements. Following this direction of analysis, I found that the unique features of curriculum and assessment policy in each setting help explain why mentors in different countries exhibited different beliefs about what novices needed to learn.

The US schools had varied school curriculum structures. For example, the curriculum in Rite High School in the Midwest took the form of long-range unit planning. Teachers there reserved the right to choose the sequence of curriculum topics and sources, and to decide the breadth and depth of content coverage. In contrast, teachers in Ball School in the South had less autonomy and had to follow a certain sequence of curriculum topics.

However, the curriculum and assessment policy in the US schools in this study were different from the schools in the UK and Chinese settings in several ways. First, the curriculum policy in these US schools was often decided at the district level in terms of general content coverage without specific requirements for the pace, materials, and activities of teaching. Curriculum policy carried little weight in pushing teachers to implement the policy. As the mathematics mentor, Mark, said:

> I felt myself that I could make decisions about what was best for my students and people could trust my decisions. And I could trust my decisions. And that if I did not teach conic section, I found out that none of my kids would die.

Second, there was no public and curriculum-based examination as a way to check the results of students' learning and teacher's teaching of the curriculum at either school or district level in the US setting. Students were not tracked into different schools and classes based upon public and curriculum-based examinations.

Such curriculum and assessment contexts, on the one hand, gave the US teachers more autonomy in deciding the coverage and depth of teaching content, the pace for their specific lessons, and how to assess their teaching results and students' learning. On the other hand, they further contributed to the ethnically and culturally diversified student population by exposing students to the content with different coverage and depth (Cohen & Spilane, 1992; Schmidt et al., 1996). Working under such contexts of teaching, it is important for teachers to know individual students and their differences, and it is also possible to develop their own styles and philosophies of teaching and education. Thus, it seemed less important for the US mentors to push novices to develop a shared understanding of teaching, curriculum, and school culture.

The UK government started the reforms of comprehensive school and universal curriculum standards and assessments in the early 80s. By the time of our data collection, the UK secondary school system had transformed from the traditional streaming model[3] toward a comprehensive model, in which students were no longer selected into different schools and classes based upon the results of their intellectual ability test. At the same time, not only did the government prescribe the curriculum standards for both mathematics and geography subjects but it also established the national

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[3] "Streaming" means "tracking" here.

curriculum-based examination system to check the implementation of these curriculum standards.

These education and curriculum reforms strongly shaped the contexts of teaching in the schools where the UK mentors of this study worked. First, teachers had to face students with more diverse abilities in their classes, "the mixed ability classes," as the UK mentors called them. For example, in recent years, the Victoria School where Ned worked redefined its aims of schooling to adapt to the needs of a mixed ability student population as it developed from a small grammar school into a mixed comprehensive school with more than 1100 students.

Second, the national curriculum standards and curriculum-based examination system not only carried a strong weight in shaping the curriculum content coverage, but they also served as a way to check what students learned at several grade levels. For example, along with these curriculum and assessment reforms, the Victoria School mathematics curriculum guides had to incorporate the national curriculum attainment targets into all the mathematics units. In addition, these national curriculum and assessment standards made it possible to compare the results of teaching within and across different schools.

Third, the national curriculum and assessment policy did not define the ways in which the specific curriculum contents were related to each other and did not prescribe the specific textbook and materials for teaching. It left teachers in each school with the responsibility of choosing textbooks, developing teaching materials, and organizing the required content of study. For instance, the teachers of the geography department in the Hart School where Jenny worked, had to customize their own curriculum content and materials into different teaching units based upon the National Curriculum requirements and their own beliefs about teaching and learning. Then all teachers in the department shared these units in their instruction.

Working under these contexts of teaching, not only did the UK teachers have to teach an increasingly diversified student population, but also they had to develop a shared understanding about schooling and work cooperatively to reach the targets of instruction (Hargreaves, 1994). Therefore,

the UK mentors in this study shared concerns that their novices should learn how to adjust to the way of doing things in the department as well as understand the reality of diverse classrooms.

Not only did the Chinese central government develop the national curriculum standards and content, but it also centralized the textbooks, teaching materials, and pace of teaching.[4] Like "the Constitution of Teaching" as defined by the Chinese physics mentor, Yi, this centralized curriculum system had such strong power that teachers had no autonomy to change or neglect its requirements for their work. Also, the national curriculum system pushed the Chinese teachers to expose students to a similar coverage and depth of teaching content, although the outcomes of student learning could be different.

In addition, the public curriculum-based assessments were held twice a year at the district level in the elementary setting, and at both district and school levels in the normal school. The results of these examinations were used to check student learning, compare the "quality" of teaching, and track students into different schools and classes. The principal of the Normal school described the following influence of such examinations on the student population:

> The students in my school mostly come from the urban area of this city. Their overall scores in the junior secondary graduation exams are in the middle range since the best students went to the key high schools, while those who were not as good went to the ordinary high schools.

Working in such curriculum and assessment contexts, Chinese teachers, on the one hand, were obliged to meet the standards, follow the curriculum, and develop the shared ethics of their work. On the other hand, they faced a less diversified student

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[4] During the 1960s and 1970s, the centralized curriculum system temporarily broke down due to the Cultural Revolution. In the early 1980s, it was re-established. Although, since the later 1990s, there has been an increased momentum to push some kind of curriculum decentralization, the curriculum structure at the time of our data collection reflects the centralized model of the 1980s.

population in their classrooms. Therefore, the Chinese mentors emphasized that novices should learn how to understand the centralized curriculum and textbooks and to develop shared ethics of teaching, while the concern about diverse student learning was not as salient.

In sum, although varied among mentors within each setting, mentors in each country shared some common beliefs about what their novices needed to learn. The kind of curriculum and assessment policy in each country setting contributed importantly to such conceptual commonalties among the mentors.

4. Contexts and patterns of mentor–novice interaction

4.1. Patterns of mentor–novice interaction in each setting

Although the patterns of mentor–novice interaction alone may not necessarily determine the quality of novices' learning, it is reasonable to assume that fewer, shorter, and more interrupted interactions offer different opportunities for novices to learn to teach from the more frequent, longer and uninterrupted ones. For example, a five-minute mentor–novice interaction involving three issues will leave little room for the pairs to have expanded

and deep discussion of any one of these issues. Therefore, the patterns of mentor–novice interactions tell us more than just how much time and how often mentors interacted with their novices, how many things they dealt with in one interaction, and where their conversations took place. These patterns also suggest different opportunities for novices' learning. Analysis of log data leads me to the following findings about mentor–novice interaction patterns in each setting.

Table 4 suggests that mentors in the US induction program developed three important patterns of interacting with their novices. First, the average mentor–novice interactions in this setting happened in about two days each week and on each interaction day, a mentor–novice pair had one or two interactions on average. Second, when an interaction occurred, the US induction mentors and novices would discuss about many things at some length. As shown in Table 4, 55% of their interactions lasted over 16 min and more than 62% of their interactions were multiple-topic interactions. Third, most of their interactions took place in their classrooms. These mentor–novice interaction patterns indicate that mentors in the US induction program had fewer chances to interact with their novices each week. Once they met with each other, they talked for an extended period and discussed as many things as possible and, moreover, their interactions with the novices often occurred in classrooms.

Table 4
Patterns of mentor–novice interactions in each setting

Interaction Features	US (I)[a] (4 pairs)	US (P) (8 pairs)	UK (P) (4 pairs)	China (I) (7 pairs)
Days with interactions per week (days)	2.4	4.4	3.1	5.2
Interactions per week (times)	3.0	19.9	7.8	7.1
Interactions over 16 min (%)	56.1	30.9	34.2	78.3
Single-topic interactions (%)	37.5	59.2	46.6	37.0
Multiple-topic interactions (%)	62.5	40.4	53.0	63.0
Interactions happened in classroom (%)	72.8	76.3	22.7	10.1
Interactions happened in office (%)	4.6	5.0	60.2	68.0
Interactions happened in other places of school (%)	13.5	11.5	13.5	15.5
Interactions happened out of school (%)	8.4	6.6	3.2	6.2
Total interactions (Times)	48	491	251	335
Average number of interactions per pair	12	61	63	48

[a](I) = induction program; (P) = preservice program.

Mentors in the US preservice programs developed a different pattern of interaction with their novices. They interacted with novices in about four days and twenty times each week and most of their interactions were short. Only 30% of their interactions lasted over 16 min. Moreover, about 59.2% of their interactions with novices were single-topic and most of their interactions took place in classrooms. In contrast to their induction counterparts, the US preservice mentors had many short interactions with novices each day and often discussed one thing each time. However, like their induction counterparts, they were more likely to have conversations with their novices in classrooms.

The UK mentors of this study developed a pattern of interaction with novices different from both their US induction and preservice counterparts. As shown in Table 4, the UK mentors interacted with novices about eight times and three days each week and 34.2% of their interactions were longer than 16 min. Among all the interactions, 46.6% were focused on a single issue while 53.0% were multiple-topic interactions. Moreover, most of their interactions occurred in their offices rather than in their classrooms. In comparison to the US preservice mentors, the UK mentors had fewer interaction days each week and fewer interactions in each interaction day. Most of their interactions were usually short. However, unlike their US counterparts, their interactions dealt quite evenly with both single and multiple issues. Most of their interactions happened in their offices rather than in their classrooms.

Table 4 indicates that the Chinese mentors interacted with novices almost every day and for each interaction day, they had one or two interactions.[5] Most of their interactions with novices lasted over 16 min, happened in their office, and were multiple-topic interactions. Comparatively speaking, the Chinese mentors had more interactions on average than their US induction counterparts but fewer than the US and UK preservice mentors. However, they had most of their interaction in their

offices like the UK preservice mentors and often discussed several topics in each interaction like the US induction mentors.

In short, mentors from different kinds of programs and countries in this study developed different patterns of interactions with their novices. These differences are reflected in the length and frequency of mentor–novice interactions, the places where their interactions occurred, and the number of topics they discussed in their interactions. These differences suggest that the number of issues that mentors and novices were able to deal with in one interaction were often related to how long and how often they were able to talk with each other.

4.2. Contextual influences on mentor–novice interaction patterns

Different ways in which teaching and mentoring were structured in each setting appeared to shape different patterns of mentor–novice interactions in these settings. The US teachers taught all the subjects to one class at the elementary level and one subject to several classes at the secondary level. Although teaching relatively small classes of twenty-five to thirty students, they had to stay in their classroom for almost the whole day each day and their classrooms served as their offices. These features of teachers' work became even more complicated when different kinds of mentoring programs were structured in these schools.

In the US induction programs, novices had their own classrooms and their mentors were released from their daily teaching to work with several novice teachers in different schools. These mentors had neither teaching responsibility nor experience in the novices' classes and schools. They came to their novices' class once or twice each week to do their mentoring job. In contrast, in the US preservice programs of this study, novices were assigned to stay in their mentors' classrooms teaching for most of the time each day and worked cooperatively with mentors to teach or organize class activities during their stay.

These contexts in the US strongly affected how mentors in different programs interacted with their novices. First, the US induction mentors were outsiders to the class and school where their novices

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[5] Chinese teachers worked six days a week during the year when the NCRTL mentoring project was collecting data in these schools.

were teaching. They could not come to their novice's classes every day. Thus, they ended up with relatively fewer chances to talk to their novices each week and once they came, they had to cover many things in a relatively longer interaction.

Having to take turns to deal with students and teaching in the same classroom for the whole day, the US preservice mentors and novices were so occupied that they had relatively few large chunks of time to interact with each other. In addition, their interactions were easily interrupted by students because their classrooms were their offices. Therefore, these mentors and novices developed shorter and more single-topic interactions.

The UK teachers were also organized to teach about twenty to thirty students each lesson and several classes in a school day. However, they did not always spend their time in the classrooms. Instead, they had their shared department office and many teaching-related activities happened there. In addition, the UK preservice mentoring program was structured in a way that their novices not only taught their mentors' class but also worked in the other teachers' classrooms.

These contexts of teaching and mentoring strongly influenced how the UK mentors interacted with their novices. On the one hand, they made it difficult for the UK mentors to talk to their novices as frequently as their US preservice counterparts. On the other hand, they allowed the UK mentors and novices to have somewhat longer interactions and discuss more issues in their offices without being interrupted by on-going teaching activities in their classrooms.

The Chinese teachers at both elementary and secondary levels were organized to teach one subject area and two big classes of about fifty to sixty students each day. After each lesson, they stayed in the teaching research group office that they shared with other teachers who taught the same subject. They planned lessons and had many teaching-related activities together there. All seven Chinese novices of this study had their own classrooms for which the mentors did not have any direct teaching responsibility. However, the Chinese mentors were all experienced teachers working in the same school who had used or were still using the same textbooks as those of their novices. Most of the Chinese

mentors taught the same grade level with their novices.

These contexts of teaching and mentoring allowed the Chinese mentors and novices to have more frequent interactions than their US induction counterparts. Like their UK preservice counterparts, the Chinese mentors and novices could have longer interactions in a secure place than the US preservice mentors and novices. However, these contexts also limited their chances to interact with each other as frequently as the US counterparts because they did not stay together for the whole day in one classroom.

In sum, the analysis in this section suggests that mentors and novices in each country setting developed quite different patterns of interaction with each other. Such different patterns of mentor–novice interaction to some extent can be interpreted as the results of the different ways in which teaching and mentoring were structured in each program and country.

5. Contexts and foci of mentor–novice interactions

5.1. Foci of mentor–novice interaction in each setting

The foci of mentor–novice interaction in each setting is another area worth exploring if we want to understand the nature of learning opportunities offered for novices in these interactions. To understand the foci of mentor–novice interaction, I examined the log data and identified the kinds of topics in the four different program and country settings. With the support of my colleagues, I coded and calculated the frequency of each topic and identified the following eight topics each of which constituted more than 5% of the total interactions in each setting.

1. *Curriculum topics*: These are topics about the goals and objectives for teaching, particular learning activities, sequence of activities, textbooks and other instructional materials as well as the plans and schedules for teaching.

2. *Pedagogical topics*: These are discussions about teaching practices that have already occurred and/or will take place. They also cover the discussions on subject matter knowledge, instructional strategies, clarity of explanation, and so on.
3. *Assessment topics*: These are topics related to assessing students' learning and accomplishments as well as their progress.
4. *Topics about novices*: These issues are related to novices' needs and feelings as well as what novices are learning or need to work on.
5. *General topics*: These topics deal with educational ideas, theories, issues, policies, and concepts that may not be related to a particular lesson, class, event, or situation.
6. *Topics about individual students*: These include discussions about the background, learning needs, behavior, and progress of an individual student.
7. *Classroom management topics*: These are issues about the behavior, routines, norms, logistics, and procedures of a class or groups of students in a class.
8. *Other topics*: These include all the other discussions that are not related to learning, teaching, and education.

Looking carefully about how often these topics appeared in mentor–novice conversations in each setting, I arrived at the following findings (see Table 5).

In the US induction setting, the most frequent topics between mentors and novices were related to curriculum and pedagogy and they focused somewhat more on curriculum. This finding is consistent with a functional analysis done by Odell (1986). When discussing teaching practice, the US induction mentors talked more about novices' teaching instead of their own or other teachers' practice. They paid little attention to individual student learning while devoting substantial attention to general education issues and the needs of novices. In addition, they talked a lot about things that were not at all related to teaching and education.

Like their induction counterparts, the US preservice mentors discussed mainly curriculum and pedagogy with their novices but gave relatively more attention to curriculum. They also talked mainly about novices' teaching when discussing pedagogy with novices. However, the US preservice mentors and novices had discussions about novices' needs less often than the US induction pairs. Also unlike their induction counterparts, they paid substantial attention to individual student learning, assessment, and classroom management.

The UK mentors and novices paid relatively equal attention to both curriculum and pedagogical

Table 5
Mentor–novice interaction topic distribution

Topics	US (I) (4 pairs)	US (P) (8 pairs)	UK (P) (4 pairs)	China (I) (7 pairs)
Curriculum (%)	26.9	39.1	33.7	16.8
Pedagogy (%)	20.5	21.6	29.4	46.7
Pedagogy of mentors and other teachers (% of pedagogy topics)	31.3	30.9	65.5	28.0
Pedagogy of novices (% of pedagogy topics)	68.8	69.1	34.4	72.0
Assessment (%)	*	7.3	5.5	7.6
Novices' needs (%)	14.3	7.1	9.1	*
General ideas (%)	7.7	*	5.5	12.2
Individual students (%)	*	7.9	*	*
Classroom management (%)	*	8.7	*	*
Other non-teaching related issues (%)	7.7	*	*	*
Total number of topics	78	644	395	458
Average number of topics per pair	19	80	99	65

* denotes less than 5%.

issues, which were also the dominant topics in their interactions. In contrast to their US preservice peers, they preferred to discuss the teaching practices of mentors and other teachers rather than those of novices. They talked somewhat more about issues of novices' needs and general education. However, in contrast to their US preservice counterparts, they paid relatively little attention to classroom management and individual students.

In the Chinese sites, the dominant topics were also curriculum and pedagogy, but the Chinese mentors and novices discussed a lot about pedagogical issues with a special focus on novices' teaching practices. Like their UK preservice and US induction counterparts, they talked about general ideas of education. They also had considerable discussions about assessment with their novices as the UK and US preservice mentors did. However, they paid relatively little attention to the issues of individual students, the feelings and needs of novices, and classroom management.

In short, the foci of mentor–novice interaction in the different settings suggest an interesting feature. That is, the kinds of focus that mentors developed in their interactions with novices did not totally rely on which country or which program they were from. This aspect of their interaction demands a more careful interpretation.

5.2. Contextual influences on the foci of mentor–novice interactions in each setting

The findings about the foci of mentor–novice interactions pushed me to look for different contexts in each setting to construct an explanation. These contexts include the structure of curriculum policy, the organization of teaching and mentoring, and the student population.

The dominance of curriculum and pedagogy topics in mentor–novice interactions in all three settings is not surprising when considering mentoring as an effort to help novices learn what and how to teach. In fact, all the mentoring programs in the three countries were designed to encourage mentors to assist their novices in these directions. However, working under different curriculum structures, mentors and novices in each country paid different attention to the issues of curriculum and pedagogy.

The decentralized curriculum structure pushed the US teachers to take more responsibility for developing specific curriculum units, lessons, and teaching materials in order to teach, while the lack of shared standards placed them in a difficult position to discuss the effectiveness of teaching practices. This helps explain why the US mentors and novices in both programs devoted more of their interaction topics to the issues of developing curriculum rather than pedagogy. In addition, these contexts of teaching also appeared to push the US mentors to pay attention to the needs of novices in their interactions with novices.

The national curriculum policy made it possible for the UK teachers to pay less attention to the curriculum goals, objectives, and content than their US counterparts. Yet at the same time, teachers in a particular school still needed to work together to customize teaching units and materials by incorporating the national curriculum requirements and teachers' own ideas. These contexts help explain the facts that the UK mentors and novices paid quite equal attention to both curriculum and pedagogy issues and that they discussed general ideas about teaching and education as well as what novices needed.

In the Chinese setting, the national curriculum limited teachers' autonomy in making curriculum and assessment decisions on the one hand. On the other hand, it contributed to the shared standards and ethics of the teaching profession. These contexts, to some extent, confined the space for the Chinese mentors and novices to discuss curriculum issues and novices' needs. However, it was necessary and important for the mentors to help novices learn to teach the standardized curriculum and develop a shared understanding about norms and issues of teaching.

The different structures of teaching and mentoring in each setting provided an impetus for mentors and novices to deal with the issues of students in different ways. The diverse student population was an important reality of teaching that the US novices had to face and to learn to deal with in the future. Not only did the US preservice mentors believe that novices needed to learn about students'

learning and their differences, but they also worked in the same classroom for the whole day. These contexts of teaching and mentoring allowed the US preservice mentors and novices to have substantial discussions about specific issues of individual students and classroom management.

However, the US induction mentors were the outsiders to the class and school where their novices worked. They only came to the classroom to talk with their novices once or twice each week. Such a program context limited the opportunities for these mentors to discuss individual students and their differences, although most of them believed that knowledge of individual students and their learning were important thing that novices needed to learn. In addition, this program structure also put the US induction mentors in a difficult place to discuss specific issues about the teaching of their novices. Thus, these mentors talked more about the general issues of teaching and education or socialized about other unrelated things.

The UK preservice program required novices to teach in the classrooms of their mentors and other teachers. This program context reduced the chances for the UK mentors to discuss the issue of individual students. It also created problems for the mentors in observing and discussing novices' teaching specifically. However, it allowed the UK mentors to discuss with novices more about how other teachers taught.

The Chinese mentors and novices worked under the centralized curriculum and assessment system that controlled the students' diversity. However, they did not share teaching responsibilities in the same classrooms. These contexts make it less important and more difficult for the Chinese teachers to deal with individual students and classroom management issues.

In general, my analysis indicates that mentors and novices in different settings paid varied attention to different issues in their interaction. Such differences of mentor–novice interaction foci to some extent can be understood as the outcomes of the various contextual factors in each setting, such as the particular curriculum and assessment, student population, and structure of teaching and mentoring.

6. Discussion and conclusion

Although the findings from this study cannot represent all the possible relationships between instructional contexts and mentoring practices in different programs and countries, yet they do help highlight several things about the relationship.

First, this study shows that even when mentors are practicing or moving toward practicing reform-minded teaching, their mentoring practice may not create the necessary opportunities for novices to learn to teach in the same direction.

Research suggests that to learn to teach for understanding, novice teachers need opportunities to form a strong commitment toward reform-minded teaching (Cochran-Smith & Lytle, 1999) and to develop a deeper understanding of subject matter (Ball & McDiarmid, 1989). They need opportunities to learn how to represent what they teach effectively in classrooms (Shulman, 1987) and how to connect what they teach to students with different backgrounds (Kennedy, 1991). They also need opportunities to learn how to conduct the kind of reflection that supports their continuous learning to teach (Schon, 1987). However, the opportunities for novices in this study to learn these things with their mentors were clearly different.

Not only were the US preservice novices expected to learn about individual students and their diversity but they also actually had opportunities to discuss about individual students with their mentors. In addition, they had the chance to learn how to develop specific curriculum and pursue their own teaching styles. However, their chances to be engaged in substantial co-reflection on teaching practice with mentors were limited. They had fewer opportunities to develop shared commitments to the kind of teaching encouraged by the education reformers, even though their mentors were teaching or moving toward teaching in this way.

In the US induction context, although the novices were expected to learn about their students, they had fewer opportunities to discuss individual students with their mentors. These novices had the chance to learn how to develop specific curriculum and pursue their own teaching styles, but their chances to discuss specific events and issues of

teaching were limited. They had relatively fewer interactions with their mentors. Moreover, many of their interactions with mentors were used to discuss issues unrelated to teaching and education.

The UK novices were encouraged to learn how to adapt to the ways of doing things shared by the teachers in a particular school and to understand this reality of diverse classrooms. They had equal opportunities to discuss both curriculum and pedagogy issues in their interactions with their mentors and to reflect on teaching practices of different teachers. However, they had relatively fewer chances to reflect on their own teaching practice and actually learn about individual students with their mentors.

The Chinese novices were expected to learn the national standards, content, and requirements of curriculum as well as how to adapt to the shared ethics of teaching profession. They had relatively more chances to reflect about their teaching practice with their mentors in the longer interactions. However, they had fewer opportunities to understand individual students, and to develop specific units and lessons along the lines of their individual preferences with support of their mentors.

Second, this study also helps us understand that mentors' beliefs and mentoring practices are more consistent with the instructional contexts in which they work rather than with precedence that might help novices learn to teach the ambitious teaching that mentors are practicing. Thus, being a good teacher, although necessary, may not guarantee one to be an effective mentor who is able to support novices to learn to teach in the same direction.

It is assumed that when mentor teachers are practicing or moving toward practicing an ambitious kind of teaching, there are more chances for them to support novice teachers to teach against the grain (Cochran-Smith, 1991). Many teacher education and induction programs rely on seniority and relevant teaching experiences as the predominant standards for selecting teachers to be mentors. An underlying assumption for such standards is that good teachers can be effective mentors. However, this study shows that such an assumption is questionable.

Although mentors in this study were all teaching or moving toward teaching as expected by the education reformers, their mentoring conceptions and practices were more influenced by their instructional contexts — the structures of school curriculum, teaching and mentoring work, and the student population. Working in different instructional contexts of teaching and mentoring, these mentors were obliged to pay more attention to certain tasks while neglecting or leaving little room for other issues when supporting their novices' learning. Without substantial support for learning to be an effective mentor, these mentors thought and acted more like local guides, who helped novices to adapt to the existing context and culture of teaching, rather than like professional teacher educators who did everything possible to support novices in developing ambitious teaching practice.

Third, this study shows that working under certain instructional contexts, mentor teachers are more likely to develop certain conceptions and practices of mentoring relevant to the contexts. In contrast, without certain contexts, they are less likely to form certain beliefs and practices of mentoring. Thus, although not all-determining, different instructional contexts can open different opportunities in shaping the nature of ideas and practices that mentors develop.

This finding is consistent with assumptions of the social–cultural perspective of learning as well as research on the relationship between curriculum structures and teaching. The social–cultural perspective of learning suggests that all knowledge and theories exist first on the social level and then on the individual level (Vygotsky, 1978), and they grow out of the contexts of their use (Brown et al., 1989). Research on the relationship between curriculum structures and teaching implies that the structures of curriculum are related to the kinds of teachers' decision making (Stevenson & Baker, 1991). The structural change in curriculum and assessment would be likely to result in the relevant transformation of professional culture (Hargreaves, 1994).

The US preservice mentors shared beliefs of novices' learning that reflect the features of non-authoritative, unspecified, and inconsistent curriculum structure and a diversified student population. They stressed that novices needed to understand about individual students, develop varied teaching styles, and form their own philosophies. In their

actual mentoring practice, they spent more time in supporting novices to develop and organize specific curriculum, units, and lessons. They also had substantial discussions about individual students and the needs of novices.

The US induction mentors had similar beliefs about what novices needed to learn and beliefs that were consistent with the curriculum and assessment policy. They also supported novices in developing specific curriculum for teaching and pursuing their individual needs. However, they were unable to discuss individual students on specific issues of teaching with novices due to the program structure.

What the UK mentors believed about and did in mentoring reflected the features of a semi-centralized curriculum structure, an increasingly diversified student population in their classrooms, and the unique arrangement of their mentoring program. Their beliefs emphasized novices' commitment to the ways of doing things in the particular school department and the need to understand the reality of diverse students. However, in their actual interaction with novices, they paid little attention to individual students due their program structure, while the patterns and other foci of their interactions with novices also reflected the influences of such instructional contexts.

The Chinese mentors shared beliefs and developed practices of mentoring that were clearly related to their instructional contexts. These contexts had an authoritatively and consistently prescribed curriculum and assessment structure, a less diversified and more controlled student population, and specific ways in which their relationship with novices was structured. They expected novices to study the centralized curriculum and develop a shared understanding and attitudes towards the teaching profession. In their mentoring practice, they helped novices learn to teach the required curriculum standards and content and paid little attention to individual students or what novices needed.

7. Implications for mentoring research and policy

The study leaves a few areas undeveloped. In particular, the following two areas of the relation-

ship between mentoring practice, the contexts of teaching and mentoring, and opportunities for novices' learning need further exploration.

First, an important area is the expectations and beliefs that novices develop for their relationships with mentors and the contexts of teaching, as well as the impacts of such expectations on the quality of mentor–novice interaction. If novice learning to teach with mentors is an active process of knowledge construction (Richardson, 1996), their expectations for and beliefs about mentoring practice and school contexts can be reasonably assumed to influence the interactions between mentors and novices in different contexts. Without a proper understanding about such influences, the picture about the relationship between mentoring, the contexts of teaching and mentoring, and the opportunities for novices' learning to teach is still incomplete.

Second, this study offers some findings about the relationship between mentoring practices and the contexts of teaching and mentoring, and presumes there are opportunities for novices to learn to teach in different contexts. However, it does not address what novices actually learned in each setting, an area of research that is still weak and undeveloped in the research on learning to teach (Wilson & Berne, 1999). To develop a proper understanding about what novices learn with mentors, it requires us to categorize the kinds of knowledge novices are able to develop. It also requires us to design tools that we can use to assess the kinds of teaching that novices are able to practice. We also need to develop the necessary methods to identify and capture the relationship between what novices are able to learn and the kinds of mentoring practices that support their learning.

This study offers several implications for mentoring policy makers and program developers. First, relevant teaching experience, though important, is not a sufficient condition for a teacher to be a professional mentor. Mentors who are practicing or moving toward practicing the reform-minded teaching may not develop the necessary conceptions and practices of mentoring that offer all the crucial opportunities for novices to learn to teach in a similar way. Thus, when selecting mentor teachers, not only is it important to consider the

relevant teaching experience of mentors but it is also important to identify how mentors conceptualize mentoring and their relevant experience in conducting the kind of mentoring practices expected.

Second, this study also indicates that instructional contexts had a strong influence on mentors' conceptions and practices of mentoring. An effective mentoring relationship cannot be guaranteed by simply giving mentors some time to work with their novices or by adding a mentoring structure to the existing school context. It is necessary for mentoring program developers to consider the potential influences of different instructional contexts when structuring mentoring relationships. It is also important for them to choose or restructure the school context carefully so that an environment that supports the expected mentoring can be created and the negative influences of certain existing school contexts can be reduced.

Third, on many occasions, teacher educators do not have many choices regarding where to place novices in the schools. Sometimes the instructional contexts do not necessarily support the kind of learning we expect novices to experience. We may have to pair novices with mentors whose conceptions and practices of mentoring do not necessarily reflect our expectations for effective mentors. Thus, it is important and necessary for mentoring program developers to create professional development opportunities and offer necessary supports for mentors to learn what and how to mentor. This task should be seen to be as important as how to educate novice teachers. Without quality mentoring, we will risk having novices learning teaching practices that do not reflect quality teaching.

References

Anyon, J. (1981). Social class and school knowledge. *Curriculum Inquiry*, *11*, 3–42.

Ball, D. L., & McDiarmid, G. W. (1989). *The subject matter preparation of teachers* (Issue Paper 89-4). E. Lansing, MI: National Center of Research on Teacher Learning, Michigan State University.

Brown, J. S., Collins, A., Duguid (1989). Situated cognition and the culture of learning. *Education Researcher*, *18(1)*, 32–34.

Carter, K. (1990). Teachers' knowledge and learning to teach. In W. R. Houston (Ed.), *Handbook of research on teacher education* (pp. 314–338). New York: MacMillan.

Cochran-Smith, M. (1991). Learning to teach against the grain. *Harvard Educational Review*, *61*(3), 279–310.

Cochran-Smith, M., & Lytle, S. (1999). Relationship of knowledge and practice: Teacher learning in communities. *Review of Research in Education*, *24*, 249–298.

Cohen, D. K., McLaughlin, M. W. & Talbert, J. E. (Eds.). (1993). *Teaching for understanding: Challenges for policy and practice*. San Francisco: Jossey-Bass.

Cohen, D. K., & Spilane, J. P. (1992). Policy and practice: the relation between governance and institution. *Review of Research in Education*, *18*, 36–50.

Eckstein, M. A., & Harold, J. N. (1993). *Secondary school examinations: International perspectives on politics and practice*. New Haven and London: Yale University Press.

Feiman-Nemser, S., & Buchmann, M. (1987). When is student teaching teacher education?. *Teaching and Teacher Education*, *3*(4), 255–273.

Feiman-Nemser, S., & Floden, R. (1986). The culture of teaching. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.) (pp. 505–526). New York: Macmillan.

Feiman-Nemser, S., & Parker, M. B. (1992). *Mentoring in context: A comparison of two U.S. programs for beginning teachers*. NCRTL Special Report, East Lansing, MI: National Center for Research on Teacher Learning, Michigan State University.

Feiman-Nemser, S., & Remillard, J. (1996). Perspectives on learning to teach. In F. B. Murray (Ed.), *The teacher educator's handbook* (pp. 63–91). San Francisco: Jossey-Bass Publishers.

Guyton, E., & McIntyre, D. J. (1990). Student teaching and school experiences. In W. R. Houston, M. Haberman, & J. Sikula (Eds.), *Handbook of research on teacher education* (1 ed.) (pp. 535–548). New York: Macmillan.

Hargreaves, D. H. (1994). The new professionalism: The synthesis of professional and institutional development. *Teaching and Teacher Education*, *10*(4), 423–438.

Holmes Group. (1986). *Tomorrow's teachers*. East Lansing, MI: Holmes Group.

Holmes Group. (1990). *Tomorrow's schools*. East Lansing, MI: Holmes Group.

Kennedy, M. (1991). *An agenda for research on teacher learning*. NCRTL Special Report, East Lansing, MI: National Center for Research on Teacher Learning, Michigan State University.

Kennedy, M. (1997). The connection between research and practice. *Educational Researcher*, *26*(7), 4–12.

Lieberman, A. & Miller, L. (1991). Revisiting the social realities of teaching. In A. Lieberman, & L. Miler (Eds.), *Staff development for education in the 90's: New realities, new perspectives*. (2nd ed.). New York: Teachers College Press.

Little, J. W. (1990a). The mentoring phenomenon and the social organization of teaching. In: C. B. Cazden (Ed.), *Review of research in education*, vol. 16. (pp. 279–252). Washington, DC: American Educational Research Association.

Little, J. W. (1990b). The persistence of privacy: Autonomy and initiative in teachers' professional relationship. *Teachers College Record*, *91*(4), 509–536.

McIntyre, D. J., Byrd, D. M., & Fox, S. M. (1996). *Field and laboratory experiences*. New York: Macmillan.

Metz, M. H. (1993). Teachers' ultimate dependence on their students. In Little, & M. W. McLanghlin (Eds.), *Teachers' work: Individuals, colleagues, and contexts* (pp. 104–136). New York: Teachers' College Press.

National Council for the Social Studies. (1994). *Expectations of excellence: Curriculum standards for social studies*. Washington, DC: National Council for the Social Studies.

National Council of Teachers of English and the International Reading Association. (1996). *Standards for the English language arts*. National Council of Teachers of English and the International Reading Association.

National Council of Teachers of Mathematics. (1989). *Curriculum and evaluation standards for school mathematics*. National Council of Teachers of Mathematics.

National Research Council. (1996). *National science education standards*. Washington, DC: National Academy Press.

Odell, S. J. (1986). Induction support of new teachers: A functional approach. *Journal of Teacher Education*, *37*(1), 26–29.

Odell, S. J., Huling, L., & Sweeny, B. (1999). Conceptualizing quality mentoring: Background information. In: S. J. Odell, & L. Huling (Eds.), *Quality mentoring for novice teachers* (pp. 8–17). Indianapolis, IN: Kappa Delta Pi.

Paine, L. W. (1997). Chinese teachers as mirrors of reform possibilities. In W. K. Cummings, & P. G. Altbach (Eds.), *The Challenge of eastern Asian education* (pp. 65–83). Albany: SUNY Press.

Richardson, V. (1996). The role of attitude and beliefs in learning to teach. In J. Sikula, T. Buttery, & E. Guyton (Eds.), *Handbook of research on teacher education* (2nd ed.) (pp. 102–119). New York: Macmillan.

Schmidt, W. H., McKnight, C. C., & Raizen, S. A. (1996). *A splintered vision: An investigation of U.S. science and mathematics education*. Boston, MA: Kluwer Academic Publishers.

Schon, D. (1987). *Educating the reflective practitioner*. San Francisco: Jossey Bass.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, *15*(2), 4–14.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, *57*(1), 1–22.

Sternberg, R. J., & Horvath, J. A. (1995). A prototype view of expert teaching. *Educational Researcher*, *24*(6), 9–17.

Stevenson, D. L., & Baker, D. P. (1991). State control curriculum and classroom instruction. *Sociology of Education*, *64*, 1–10.

Tharp, G., & Gallimore, R. (1988). Assisting teacher performance through the ZED: A case study. In Tharp, & Gallimore (Eds.), *Rousing mind to life: Teaching, learning, and schooling in social context*. Cambridge: Cambridge University Press.

Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes*. Cambridge: Harvard University Press.

Wang, J. (1998). Comparison of curriculum and teaching in China and U.S. In D. Xiaojie (Ed.), *Toward education in China in the 21st century: Visions and challenges from global perspective* (pp. 225–228). Gulin, China: Guangxi Normal University Press.

Wilson, S. M., & Berne, J. (1999). Teacher learning and the acquisition of professional knowledge: An examination of research on contemporary professional development. *Review of Research in Education*, *24*, 173–209.

Winograd, K., Higgins, K., McEwan, B. & Haddon, L. (1995). *Relinquishing field supervision to the mentors: University teacher educators rethink their practice.* Paper presented at the Annual Conference of the American Educational Research Association, San Francisco.