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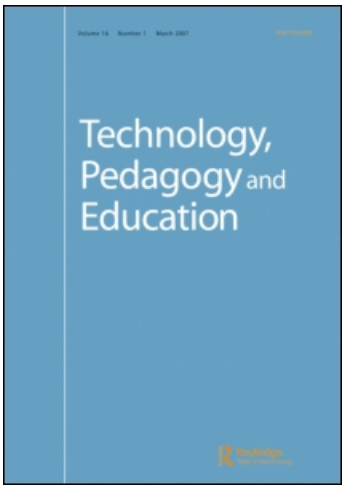

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Technology leadership and supervision: an analysis based on Turkish computer teachers' professional memories

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Technology leadership and supervision: an analysis based on Turkish computer teachers' professional memories

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This study examined Turkish computer teachers' professional memories telling of their experiences with school administrators and supervisors. Seventy-four computer teachers participated in the study. Content analysis of the memories revealed that the most frequently mentioned themes concerning school administrators were 'unsupportive attitudes of administrators', and 'forcing teachers to do school's computer-related extra work', whereas the most frequently mentioned themes concerning supervisors were 'formalist supervision/evaluation approach', 'lack of computer knowledge and skills', and 'forcing teachers to do his/her personal work'. Findings suggest that the current leadership and supervisory practices in the Turkish educational system seem to have little or no formative impact on the computer teachers' classroom instruction and professional development. However, leadership and staff development are very important roles especially in developing countries such as Turkey, because these countries need to use their limited resources more effectively and efficiently for successful technology implementation.

Keywords: technology leadership; supervision; teacher memories; computer teachers

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Introduction

The Turkish Ministry of National Education (MNE) received a loan from the World Bank for the Basic Education Project in 1997. The primary aims of this project were to expand the scope of basic education and to improve the quality of education. To achieve these aims, the MNE set additional aims, such as to ensure that each student and teacher become computer literate, to integrate information technologies into school curricula, and to establish computer laboratories in schools (Ministry of National Education [MNE], 2004). With this in mind, the MNE designed some new elective courses to contribute to the improvement of the quality of education. A computer course was added as an elective to the primary school curriculum in 1998 as one or two hours per week for grades four through eight and was later added to the academic high school curriculum in 2000 for grades nine and ten. Parallel to these initiatives, the Council of Higher Education made some arrangements to the teacher education system in 1998, including the nationwide reorganisation of the faculties of education and the establishment of a new teacher training programme, called Computer and Instructional Technologies Education, to train computer teachers for

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primary schools and academic high schools. At the beginning of the project, the computer teachers were considered to be 'pioneers' to spread computer literacy among students, and to train and assist different subject teachers about how to use computers in their classroom teaching.

In 2005, the MNE allowed students to take computer courses as an elective from first to eighth grades. In the Turkish public primary school system, however, the classroom teacher and school administrators, not the students themselves, decide which electives will be taken by a whole class. In 2005, the MNE also designed a new course, Information and Communications Technologies (ICT), and added this course to the academic high school curriculum, in place of the computer course. In 2006, the MNE completely revised the primary schools' computer curriculum and changed the title of this course to ICT.

At present, there are 42,590 (34,656 primary and 7934 secondary) schools housing 14,233,647 (10,846,930 primary and 3,386,717 secondary) students in Turkey (MNE, 2007). However, the number of computer teachers who graduated from a licensed computer teacher training programme meets only 10–15% of the actual needs of public schools. According to these statistics, the majority of the schools with computers have no licensed computer teachers. The MNE has been trying to solve the computer teacher shortage by employing one computer teacher for two or more schools, employing non-specialist teachers as computer teachers or allowing schools to form contracts with individuals who have appropriate backgrounds (for example, computer programmers).

Zepeda (2006) points out that a high-risk teaching population (such as first-year, alternatively certified or non-specialist teachers) needs an 'emergency supervision' plan to assist teachers who enter the profession without requisite knowledge, skills and experiences. Additionally, in the literature 'support and leadership of the principal' is cited as among the factors that maximise the benefits of computer technology in schools (Roberts, Carter, Freil, & Miller, 1988). Based on these kinds of arguments, curiosity about the new computer teachers' experiences with school administrators and supervisors in Turkey led us to examine their professional memories about what they actually faced when they were interacting with their leaders.

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Background

Technology leadership

The crucial role of technology leadership in facilitating successful diffusion and integration of technology into schools is well established (e.g., Brockmeier, Sermon, & Hope, 2005; Flanagan & Jacobsen, 2003; Gibson, 2002; Yee, 2000; Yu & Durrington, 2006). The concept of school technology leadership has been regarded as administrators' decision making about technology goals, policies, budgets, committees and other structural supports for improving technology's role in learning (Anderson & Dexter, 2000). Anderson and Dexter (2005) found that although technology infrastructure is important, technology leadership is even more necessary for effective utilisation of technology in schooling. The (US) Office of Technology Assessment (1995) reported that when school administrators are comfortable with technology, they foster technology use in their schools.

Studies showed that when administrators act as technology leaders, the teachers integrate and use technology more successfully (e.g., MacNeil & Delafield, 1998). Schmeltzer (2001) pointed out that administrators need a repertoire of strategies for

supporting teachers' efforts to use technology in the classroom. Hence, the countries that have attached a special importance to technology use in education have set technology standards for school administrators. For example, the International Society for Technology in Education published *Technology Standards for School Administrators*, including the following categories:

(1) leadership and vision;
(2) learning and teaching;
(3) productivity and professional practice;
(4) support, management, and operations;
(5) assessment and evaluation;
(6) social, legal, and ethical issues. (Collaborative for Technology Standards for School Administrators, 2001)

These standards are assumed to be the indicators of effective technology leadership.

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Instructional supervision

Supervision, staff development, and teacher evaluation are three connected dimensions of personnel improvement processes employed in educational settings (McQuarrie & Wood, 1991). Fehr (2001) defines instructional supervision as a process that emphasises a working relationship between teachers and supervisors as professionals for the improvement of teaching and learning. Generally speaking, the main function of instructional supervision is to contribute to the professional development of teachers, with an emphasis on improving teachers' classroom performance (see Lunenburg, 1998). Instructional supervision in a school can be provided by administrators, external supervisors, department heads or veteran teachers. However, in reality, the common supervisory practices have mostly been provided by school administrators or external supervisors. Administrators and supervisors generally visit a teacher's classroom, take notes, and then have a feedback conference with the teacher to share observations and recommendations. Therefore, in a broad sense, instructional supervision can be defined as everything the administrator or the supervisor does while interacting with the teacher. Research, however, has shown that administrators' supervisory practices have generally not taken the subject-matter content into account but have focused primarily on pedagogical processes, because they usually are expert in only one or two subject areas but are responsible for supervising in all subjects (Nelson & Sassi, 2000). Similarly, Zepeda and Mayers (2004) stated that many supervisors might have difficulties because of lack of knowledge of the subject matter and unfamiliarity with the grade level they supervise. According to Nolan (as cited in Bennett, 1995), the content knowledge of the supervisor plays a role in determining his/her perceptions of lesson quality and the issues that are discussed during the supervisory process.

Glanz (1995, p. 107) argues that today's classroom supervision is a 'bureaucratic legacy of fault finding'. The meaning of supervision in educational settings, however, has evolved over time. Indeed, in the past, the role of administrator and supervisor was to be a stern and punitive inspector while the contemporary supervision approach removes supervision from the judgemental, controlling function and focuses it on helping and supporting (see McQuarrie & Wood, 1991). Similarly, Fehr (2001) states that supervisors no longer act as inspectors looking for errors in teachers' behaviours,

as they did in the past. Instead, today's supervisors are more likely to be working with teachers to improve teaching and learning.

The nature of instructional supervision in the Turkish educational system

Basically, the supervision and evaluation of classroom instruction is the responsibility of both school administrators and external supervisors in the Turkish educational system. However, classroom observation and conferencing by school administrators are rare events in most Turkish public schools. There are two types of external supervisors in this system: 1) primary education supervisors, who are responsible for the supervision of primary school teachers, and 2) ministerial supervisors, who are responsible for the supervision of secondary school teachers. There currently are 2839 primary education supervisors for 402,829 primary school teachers, and only 300 ministerial supervisors for 187,665 secondary school teachers (MNE, 2007). There is a huge discrepancy between the number of teachers and supervisors who are responsible to supervise them. Hence, primary school teachers are supervised and observed in class once or twice a year while the secondary school teachers are observed in the interval of three or four years by a supervisor. In the regulations, the supervisors' main functions are described as: (a) providing guidance and on-the-job training to the teachers, (b) supervision of classroom instruction and evaluation of teachers' performance, and (c) inspection of the school and its staff in terms of the regulations and laws. When the supervisors observe teachers' classroom instruction they use standard teacher observation forms and check the following issues:

- instructional activities in the observed class hour;
- how the curriculum and unit plans are applied;
- teachers' ability in preparing questions;
- examinations;
- students' homework;
- students' level of knowledge and skills;
- teachers' success in directing the students to individual studies; and
- teachers' in-school and out-of-school activities and behaviours.

One of the main problems of the supervisory practices in the Turkish educational system is the lack of different subject-matter expert supervisors. Studies have shown that supervisory practices are mainly based on strict control, investigation, evaluation, and inspection, and therefore the guidance and improvement sides of the supervision are not taken into consideration by Turkish supervisors (e.g., Akbaba, 1997).

The importance of teachers' professional memories

Memories concern past experiences, display emotional and cognitive dimensions, and influence perception and behaviour (Goodson, Moore, & Hargreaves, 2006). Teachers' professional memories – stories of teachers' own experiences – are crucial in understanding different aspects of teaching and schooling. Connelly and Clandinin (1994) discuss how teachers' personal stories are central to teacher education and to the improvement of schools. Professional memories of teachers are not irrevocably determinant factors for predicting teaching practices or performance, but they do interact potently with teachers' efforts to frame classroom events, to identify social and polit-

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ical factors that affect students, classrooms, and policies, and to adopt more principled ways of thinking about instructional practices (see Knowles & Holt-Reynolds, 1991). Indeed, teachers generally use their professional memories as a framework to shape their future practices. In addition, the lessons teachers have learned from experience are not amendable via direct instruction (Knowles & Holt-Reynolds, 1991). As Goodson et al. (2006) state, 'teachers' memories (nostalgia) should not be trivialised as a maudlin emotional indulgence of little social or political consequence' (p. 43). Therefore, in this study, the following research questions were addressed:

(1) What types of themes were reflected in computer teachers' professional memories about their experiences with school administrators?
(2) What types of themes were reflected in computer teachers' professional memories about their experiences with supervisors?

Methods

Participants and procedure

The professional memories of computer teachers concerning school administrators and supervisors were collected via email. Teachers were asked to report their salient memories, either positive or negative. We sent our data-gathering form to the alumni email lists of different universities' computer teacher education programmes. A total of 74 computer teachers responded to our data-gathering form. Of the participants, 41 (55%) were female and 33 (45%) were male; 59 (80%) were primary school teachers and 15 (20%) were secondary school teachers. The average age was 25 (SD = 2.03), and the mean teaching experience was 2.6 years (SD = 1.56).

Data analysis

Content analysis procedures were used to analyse the computer teachers' professional memories. Content analysis is 'a research technique for the objective, systematic, quantitative description of the manifest content of communication' (Berelson, 1952, p. 18). The quantitative description process includes segmenting communication content into units, assigning each unit to a category, and providing tallies for each category (Rourke & Anderson, 2004). We used each individual memory as the unit of analysis (segment). Since every individual memory is a fixed unit, a separate segmentation procedure was not applied. Thus, a segmentation reliability coefficient was not calculated.

When we were identifying the themes we used a generative approach since we did not have proper pre-determined categories. After multiple readings of the memories, the authors created tentative categories to classify the thematic units into categories. That is, coding categories were derived from the data by the authors. The first author trained a research assistant for coding. They independently assigned each unit to a category, and provided tallies for each category in order to quantify the data. When a memory comprised of more than one type of theme, each theme was coded into the related category. During the coding, however, initial tentative coding categories were modified in accordance with the categories emerging from the data. In order to present more evidence about the reliability of classification, we used more than one method for calculating inter-rater reliability coefficients. These coefficients are reported in Table 1. Differences in classification between the two raters were resolved by discussion.

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Table 1. The inter-rater reliability coefficients.

	Classification	
Method	Administrator	Supervisor
Cohen's kappa	0.73	0.84
Kendall's tau-b	0.67	0.86
Spearman's rho	0.70	0.90

Findings and discussion

Analysis of the memories concerning school administrators

We received and analysed 80 different memories of computer teachers about their experiences with school administrators. Since some of the memories comprised more than one type of theme, a total of 120 themes were identified. These themes were grouped under six categories as depicted in Table 2.

As shown in Table 2, the most frequently mentioned themes were the administrator's unsupportive attitudes towards the computer teacher and forcing the teacher to do the school's computer-related extra work. One computer teacher recalled the following about the 'unsupportive attitudes' of an administrator:

> there was no data projector in the computer lab which made me believe that there did not exist any at school. Later, I found out that there were two data projectors which were only taken out during ceremonies to be used then to be tucked away in their boxes … I asked the principal once whether I could use one of them in my computer lab. It was rather difficult to convince him that it would be most beneficial to the students if we have one of them in our computer lab. He thought the blackboard was sufficient enough for computer course. (Code: 65)

Another computer teacher recalled the following about 'forcing teachers to do school's computer-related extra work' and the 'lack of administrative skills':

> I am a trainee (first year) computer teacher. The principal asked me to prepare a website for the school. I turned him down saying that it was not my job, and not only I have a

Table 2. The themes of computer teachers' memories about their experiences with school administrators.

Categories	f	%
Negative Experiences		
1. Unsupportive attitudes	38	31.7
2. Forcing teachers to do school's computer-related extra work	37	30.7
3. Forcing teachers to do his/her personal work	12	10.0
4. Lack of computer knowledge and skills	11	9.2
5. Lack of administrative skills	8	6.7
Subtotal	106	88.3
Positive Experiences		
1. Supportive attitudes	14	11.7
Total	120	100.0

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> heavy teaching load at school but also I was doing my masters' degree. He threatened me to cancel my trainee period. In the end, of course I obliged. (Code: 62)

Similar recollections could be found in the following quotes by two computer teachers about the 'unsupportive attitudes' of an administrator, 'forcing teachers to do his/her personal work' and the 'lack of computer knowledge and skills':

> The school administration instead of dealing with the possible problems of the technology, opt not to use it at all. For example, when I refused to take 50 students to my computer lab which had only 25 computers, the principal told me outright that I should not take them all 'Are they all going to be computer engineers' he added. We finally solved this problem by dividing the class into two groups. This however creates another problem when the students could only take lessons in two weeks time using computers which inevitably drops their output. Also, we are not able to complete the curriculum … (Code: 28)

> One day during a class hour, a student walked in and said the principal wanted me immediately in his room. I left the class and went to his room. The principal was not able to run the Winamp programme so that he would listen to songs. When I started to tell him I was in the middle of a class, he scolded me and reminded me that I should do whatever he demanded. (Code: 24)

Effective and efficient computer education and integration of computer technology into school curriculum requires a proper technology leadership. As mentioned earlier, technology leadership is one of the primary responsibilities of school administrators and includes such technology management issues as technology planning, staff development, providing access to equipment for staff, providing funding, creating supportive environments, and implementing procedures to support the technology replacement cycle. Due to the centralised nature of the Turkish educational system, public schools have no special budget for technological investments and expenditures. Thus, computers and other equipment for the public schools are provided by the MNE. However, utilising computer teachers effectively and keeping computer labs functioning are the responsibilities of school administrators. The findings of the current study showed that the majority of school administrators failed to provide adequate technology leadership for computer teachers due mainly to the lack of computer knowledge and skills, and the lack of administrative skills. In a study by Ertmer et al. (2002), two qualifications, administrative skills and technical knowledge, were cited as primary requisites for effective technology leadership by US school administrators. The results of another Turkish study (Deryakulu, 2006) demonstrated that since many school administrators are not familiar with computer technology, they most often ignore computer teachers' requests for hardware and software or their demands for repairing broken-down computers. Instead, they expect computer teachers to deal with such problems. These unsupportive attitudes lead to job stress in most computer teachers.

The literature suggests that supportive actions by school administrators as instructional leaders have powerful effects on teachers' classroom instruction. In a study by Blase (1986), the administrator's unclear expectations, lack of knowledge or expertise, lack of support, failure to provide essential resources, lack of follow-through, and poor evaluation procedures were found to be stress-provoking administrative behaviours indirectly affecting the instructional time, energy, and performance of teachers. Akbaba-Altun (2004) found that Turkish school administrators actually agree on the fact that they should perform technology leadership, however they admit that they do

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not have enough knowledge and skills to realise this role. Similarly, Gümüşeli (2002) asserted that the first four professional development needs of Turkish primary school administrators are educational technology, curriculum development, school improvement, and evaluation of teacher performance. Therefore, as many of the Turkish school administrators are novice technology users and have gained little experience in the knowledge and skills needed to be successful technology leaders, it is reasonable to suggest that an urgent in-service training or professional development course related to both computer technology and technology leadership should be provided. More specifically, the MNE should find ways to address the technology leadership needs of administrators by for example adding or modifying courses within their in-service education programmes to help practising and aspiring administrators develop a clear understanding of how technology can improve instructional practices, and a repertoire of strategies for supporting computer teachers' efforts to teach technology. The MNE, on the other hand, is considering employing a computer teacher or a computer coordinator as a 'technical assistant principal' in schools. This kind of employment may help computer teachers and school administrators to better understand each other's needs, problems, and expectations. It may also contribute to the effective utilisation of computer teachers and technology in the public schools.

In contrast to frequent negative experiences, one computer teacher wrote the following about the 'supportive attitudes' of an administrator:

> I was recently appointed to this school and I was most pleased with the interest shown to me by my principal … To give an example, before I tell the principal about any problem that occurred even with the spare computer monitors, he checks and has them repaired. When I hear about the attitude of the other principals at other schools from my colleagues, I feel I am blessed having a principal like mine with such sense of high responsibility. Furthermore, because the assistant principal is a computer wizard, I do not ever face any of the problems my colleagues complain about … (Code: 61)

This quote confirms that when the school administrators are comfortable with computer technology and are supportive, the computer teachers' perceptions and feelings about teaching and school life are positive as well. Undoubtedly, such positive perceptions and feelings can increase the teachers' commitment to teaching. Because teacher commitment is central to maintaining and improving educational quality, administrators should be aware that they are responsible for producing this quality by providing good leadership. As Mehlinger and Powers (2002) state, 'It is no longer possible for administrators to be both naive about technology and be good school leaders' (p. 218). Thus, being familiar with computer technologies can be seen as the key for being a successful technology leader. Therefore, it would be appropriate to suggest that for the Turkish educational system, national technology standards for school administrators should be developed and put into practice.

Analysis of the memories concerning supervisors

We also received and analysed 47 memories of computer teachers about their experiences with supervisors. As stated earlier, since some of the memories comprised of more than one type of theme, a total of 87 themes were identified. These themes were grouped under six categories as depicted in Table 3.

As seen in Table 3, the most frequently cited themes were the supervisor's formalist supervision/evaluation approach, lack of computer knowledge and skills, and forc-

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Table 3. The themes of computer teachers' memories about their experiences with supervisors.

Categories	f	%
Negative Experiences		
1. Formalist supervision/evaluation approach	23	26.4
2. Lack of computer knowledge and skills	21	24.1
3. Forcing teachers to do his/her personal work	18	20.7
4. Lack of expertise in supervision	15	17.2
5. Lack of pedagogical content knowledge	3	3.4
Subtotal	80	91.8
Positive Experiences		
1. Providing good guidance	7	8.2
Total	87	100.0

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ing computer teachers to do his/her personal work. One computer teacher recalled the following about the 'formalist supervision/evaluation approach' of a supervisor:

> Supervisors … they know nothing but search to find mistakes … They judge the teachers according to his/her lesson plans. One day, as the students were having an exam, a supervisor walked into my class. The students have just handed in their papers and when I was giving the answers of the exam questions we had less than four minutes for the bell. The supervisor told me that I should have written whatever I was going to do for the remaining period in my lesson plan. (Code: 9)

Two computer teachers had similar reminiscences about the 'formalist supervision/evaluation approach' and the 'lack of computer knowledge and skills':

> The supervisor who visited my class during my first year was an interesting one. He had nothing to say on my lesson plan or on the organisation of computer lab. He said that even if I made a mistake when explaining certain subject to the students, he would not notice as he did not know much about computers. The only thing he found as a 'fault' was where I wrote the date on my lesson plan. It should have been written on the right side of the sheet rather than the left, he said. That incident has made me realise how important it is to put the date on the right side of the paper for my teaching career … (Code: 26)

> When the supervisor walked into my class I was explaining a topic related to internal hardware units of the computer to the students… He started going over my daily lesson plans which all the supervisors believe they have to. When he was unable to find any fault he questioned my presentation materials (PowerPoint slides). The 'big' question was why I wrote the text as aligned left format. 'The text should be written as justified', he said … (Code: 27)

The following excerpt is a typical memory about 'forcing teachers to do his/her personal work':

> Whenever supervisors come into our school for guidance or supervision, they demand that I should fix their laptop or set up certain software since they see me as computer fixer or a repairman. They tend to use my employment file grade as means of threat. (Code: 34)

Another computer teacher recalled the following about the 'lack of expertise in supervision':

> … the supervisor asked me to hand my lesson plan. When I did, he looked at me and once again at my lesson plan and said 'If your teaching in the class is the same as your lesson plan, it is terrible…'. Then we entered the class, he observed me, gave me no feedback, and then he called me into the staffroom where all the other supervisors were having tea. Without even bothering to ask my permission, he turned to the supervisors and said 'Friends, take the teacher's telephone number, if you have any problem with your computers, you can ring her'. I was very disappointed … (Code: 36)

The following excerpt is a typical memory about the 'lack of pedagogical content knowledge':

> … the supervisor strongly suggested that I should inquire of each and every classroom teacher what he/she did on that day and design my lesson plans accordingly. At first I could not really understand why, but then I realised that he was thinking that computers were only for writing texts and it would be more useful if the students write what they were taught at other lessons. (Code: 1)

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The literature suggests that supervisors should have knowledge of the content areas they supervise. Bennett (1995), for example, revealed that teachers desired supervision from content specialists because supervisors with content knowledge give improved feedback, know what instructional strategies to suggest based on the content taught, give fairer evaluations of a teacher's classroom performance, have up-to-date knowledge of trends and issues in the content area, elicit greater respect from teachers, support the best interests of the content area when programmatic changes are made, and miscellaneous comments. The findings of the current study showed that the majority of supervisors failed to provide adequate supervision for computer teachers due mainly to the formalist supervision/evaluation approach they adopted, and the lack of computer knowledge and skills. As we extracted from the memories, the supervisors often gave no feedback or even advised inappropriate teaching methods and strategies during or after the classroom observations. They almost never stressed how the computer teachers can hone their skills around the issues of effective computer teaching, computer lab management or teacher–student interaction. Instead, adhering to the lesson plan was the major concern of the supervisors. Collins (2004) found a similar result in her case study, that Turkish supervisors placed greater priority on the required paperwork, rather than the teachers' in-class performance. This may probably stem from the fact that the majority of Turkish supervisors are 'generalists' whose preparation is in generic teaching methods and strategies.

Levandowski (2000) suggests that supervisors must establish themselves as 'credible' sources of information for the teachers they supervise. Although scholars are unclear of the specific behaviours of the supervisor that are necessary in creating credibility, according to Levandowski (2000), to establish credibility, supervisors should have knowledge of the technical aspects of teaching, subject-matter knowledge, experience in the classroom, and familiarity with the teacher's class and situation. The low credibility of the supervisor is more likely to lead to ineffective supervision. Hence, for properly supervising and evaluating computer teachers, the supervisors themselves have to acquire computer knowledge and skills before they can assist and guide the computer teachers. One option could be to train supervisors

immediately about both the computer technology and the indicators of effective, efficient, and appealing computer teaching. Another alternative could be to employ experienced computer teachers as content-specialist supervisors in the supervisory system.

In contrast to the common negative experiences, one computer teacher wrote the following about his/her positive experiences with a supervisor who provides 'good guidance':

> Once, a supervisor visited my class. He was not like a traditional supervisor who would say 'Don't make the students use the computers, tell them to write down and take notes and make sure they don't break it, if they do, punish them'. On the contrary he told the class 'Do not be afraid of using the computers, these are only machines, they can be broken and they can be repaired, this is how you are going to learn, and in any case, the technology will be outdated in a few years'. Unlike the stereotypical supervisors he just examined my lesson plans quickly and asked a few questions about my teaching practices. He then observed what we were doing with the students, and left, fairly praising my performance. (Code: 68)

This recollection demonstrates that not only the supervisor's level of computer knowledge, but also his/her 'understanding' and 'beliefs' about computer teaching, shape supervision practices. Undoubtedly, the more appropriate and valid understanding and beliefs supervisors have, the more coherent and guiding supervisory practices they perform. Therefore, more attention should be paid to the influence of supervisors' understanding and beliefs about computer teaching in shaping their supervisory practices. For example, training supervisors by using video cases that display successful examples of computers being implemented in teaching may contribute to their developing a more coherent picture of domain-specific teaching methods and strategies.

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Conclusion

The findings strongly suggest that the majority of school administrators and supervisors are 'unaware' of their technology-related roles and responsibilities. More specifically, the current leadership and supervisory practices in the Turkish educational system seem to have little or no formative impact on computer teachers' classroom instruction and professional development. However, leadership and staff development are very important roles especially in developing countries such as Turkey, because these countries need to use their limited resources more effectively and efficiently for successful technology implementation. Therefore, it can be concluded that Turkey needs comprehensive national technology planning with a clear common vision and shared purpose. This plan should clearly indicate how to re-skill not de-skill teachers, school administrators, and supervisors.

Since the participants of the present study are mostly new teachers, their experiences in this period are critical because of its formative timing. The literature highlights the importance of the induction phase and stresses the need for adequate support and guidance during the early years in the profession (Tickle, 1994, 2000, as cited in Flores, 2004). Indeed, the formative nature of the initial phase of the teaching career may have long-term implications for the teachers' professional socialisation, which can be very influential in shaping their future professional practices and commitment to teaching. Many teacher educators are interested in the potential

power of case-based teaching methods for educating school staff. Teacher educators are also interested in the development of a case literature that will capture teachers' craft knowledge, and the ways cases can be used as pedagogical tools (Levin, 2002). Cases are mostly developed from teachers' stories. It is hoped that the findings of this study could be helpful in stimulating teacher educators and educational researchers to pay attention to the professional memories of teachers which can later be used to develop cases as pedagogical tools for pre-service teacher education and in-service professional development.

Future studies should pay more attention to the implications of the lack of technology leadership and effective supervision on computer teachers' professional practices and commitment to teaching. In addition, since school administrators' and supervisors' viewpoints are crucially important, their experiences and expectations should also be examined.

Notes on contributors

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References

Akbaba, S. (1997, August). *Teachers and the roles of the inspectors in centralized Turkish primary schools.* Paper presented at the annual conference of the National Council of Professors of Educational Administration, Vail, CO.

Akbaba-Altun, S. (2004). Information technology classrooms and elementary school principals' roles: Turkish experience. *Education and Information Technologies, 9*(3), 255–270.

Anderson, R.E., & Dexter, S. (2000). School technology leadership: Incidence and impact. Teaching, learning, and computing: 1998 national survey report 6. Center for Research on Information Technology and Organizations, University of California, Irvine, CA, and University of Minnesota, MN. Retrieved January 13, 2009, from http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/00000196/80.

Anderson, R.E., & Dexter, S. (2005). School technology leadership: An empirical investigation of prevalence and effect. *Educational Administration Quarterly, 41*(1), 49–82.

Bennett, D.D. (1995, February). *The role of content knowledge in instructional supervision.* Paper presented at the annual meeting of the Association of Teacher Educators, Detroit, MI.

Berelson, B. (1952). *Content analysis in communication research.* Glencoe, IL: Free Press.

Blase, J. (1986). A qualitative analysis of sources of teacher stress: Consequences for performance. *American Educational Research Journal, 23*(1), 13–40.

Brockmeier, L.L., Sermon, J.M., & Hope, W.C. (2005). Principals' relationship with computer technology. *NASSP Bulletin, 89,* 45–63.

Collaborative for Technology Standards for School Administrators. (2001). *Technology standards for school administrators (TSSA).* Retrieved August 1, 2007, from http://cnets.iste.org/tssa/pdf/tssa.pdf

Collins, B.A. (2004). Teacher performance evaluation: A stressful experience from a private secondary school. *Educational Research, 46*(1), 43–54.

Connelly, F.M., & Clandinin, D.J. (1994). Telling teaching stories. *Teacher Education Quarterly, 21,* 191–202.

Deryakulu, D. (2006). Burnout in Turkish computer teachers: Problems and predictors. *International Journal of Educational Reform, 15*(3), 370–385.

Ertmer, P.A., Bai, H., Dong, C., Khalil, M., Park, S.H., & Wang, L. (2002). Online professional development: Building administrators' capacity for technology leadership. *Journal of Computing in Teacher Education, 19,* 5–11.

Fehr, S.J. (2001). *The role of the educational supervisor in United States public schools from 1970 to 2000 as reflected in the supervision literature.* Unpublished doctoral dissertation, The Pennsylvania State University.

Flanagan, L., & Jacobsen, M. (2003). Technology leadership for the twenty-first century principal. *Journal of Educational Administration, 41*(2), 124–142.

Flores, M.A. (2004). The impact of school culture and leadership on new teachers' learning in the workplace. *International Journal of Leadership in Education, 7*(4), 297–318.

Gibson, I.W. (2002). Leadership, technology, and education: Achieving a balance in new school leader thinking and behavior in preparation for twenty-first century global learning environments. *Technology, Pedagogy and Education, 11*(3), 315–334.

Glanz, J. (1995). Exploring supervision history: An invitation and agenda. *Journal of Curriculum and Supervision, 10*(2), 95–113.

Goodson, I., Moore, S., & Hargreaves, A. (2006). Teacher nostalgia and the sustainability of reform: The generation and degeneration of teachers' missions, memory, and meaning. *Educational Administration Quarterly, 42*(1), 42–61.

Gümüşeli, A.İ. (2002). *İlköğretim okulu müdürleri* [Principals of primary schools]. Istanbul, Turkey: Yıldız Teknik Üniversitesi Vakfı Yayınları.

Knowles, J.G., & Holt-Reynolds, D. (1991). Shaping pedagogies through personal histories in preservice teacher education. *Teachers College Record, 93*(1), 87–111.

Levandowski, G.C. (2000). *A study of teacher evaluation policy and procedures and teachers' perceptions of their supervisor's behavior.* Unpublished doctoral dissertation, Syracuse University, NY.

Levin, B.B. (2002). Dilemma-based cases written by preservice elementary teacher candidates: An analysis of process and content. *Teaching Education, 13*(2), 203–218.

Lunenburg, F.C. (1998). Techniques in the supervision of teachers: Preservice and inservice applications. *Education, 118*(4), 521–525.

MacNeil, A.J., & Delafield, D.P. (1998). Principal leadership for successful school technology implementation. In S. McNeil, J.D. Price, S.B Mehall, B. Robin, & J. Willis (Eds.), *Technology and teacher education annual 1998* (pp. 296–300). Norfolk, VA: Association for the Advancement of Computing in Education.

McQuarrie, F.O., & Wood, F.H. (1991). Supervision, staff development, and evaluation connections. *Theory into Practice, 30*(2), 91–96.

Mehlinger, H.D., & Powers, S.M. (2002). *Technology and teacher education: A guide for educators and policymakers.* Boston: Houghton Mifflin.

Ministry of National Education [Milli Eğitim Bakanlığı]. (2004). *Temel eğitim II. faz başlangıç semineri* [Basic education phase II. Beginning seminar]. Ankara, Turkey: İmaj.

Ministry of National Education [Milli Eğitim Bakanlığı]. (2007). *Milli eğitim istatistikleri: Örgün eğitim 2006–2007* [National education statistics: Formal education 2006–2007]. Ankara, Turkey: Resmi İstatistik Programı Yayını.

Nelson, B.S., & Sassi, A. (2000). Shifting approaches to supervision: The case of mathematics supervision. *Educational Administration Quarterly, 36*(4), 553–584.

Office of Technology Assessment. (1995). *Teachers and technology: Making the connection.* Washington, DC: Government Printing Office.

Roberts, N., Carter, R., Freil, S., & Miller, M. (1988). *Integrating computers into the elementary and middle school.* Englewood Cliffs, NJ: Prentice-Hall.

Rourke, L., & Anderson, T. (2004). Validity in quantitative content analysis. *Educational Technology Research & Development, 52*(1), 5–18.

Schmeltzer, T. (2001). Training administrators to be technology leaders. *Technology and Learning, 21*(11), 16–24.

Yee, D.L. (2000). Images of school principals' information and communications technology leadership. *Technology, Pedagogy and Education, 9*(3), 287–302.

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Yu, C., & Durrington, V.A. (2006). Technology standards for school administrators: An analysis of practicing and aspiring administrators' perceived ability to perform the standards. *NASSP Bulletin, 90*(4), 301–317.

Zepeda, S.J. (2006). High stakes supervision: We must do more. *International Journal of Leadership in Education, 9*(1), 61–73.

Zepeda, S.J., & Mayers, R.S. (2004). *Supervision across the content areas.* Larchmont, NY: Eye on Education.

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