Analysis of Computer Teachers' Online Discussion Forum Messages about their Occupational Problems

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ABSTRACT

This study, using content analysis technique, examined the types of job-related problems that the Turkish computer teachers experienced and the types of social support provided by reciprocal discussions in an online forum. Results indicated that role conflict, inadequate teacher induction policies, lack of required technological infrastructure and technical support, and the status of computer subject in school curriculum were the most frequently mentioned problems. In addition, 87.9% of the messages were identified as providing emotional support, while 3.1% messages were identified as providing instrumental support. It is concluded that content analysis technique provides an invaluable tool to understand the nature of communication and social interaction patterns among users in online environments. CMC in education should not only be considered to be a tool for content delivery and instructional interaction, but also a feedback mechanism and a platform for professional support, as well as an informal learning environment.

Keywords

Teacher stress, Social support, Online discussion forums, Computer-mediated communication

Introduction

Many studies have examined job-stress, burnout and job dissatisfaction among teachers (Abel & Sewell, 1999; Farber, 1984; Friedman, 1991; van Dick & Wagner, 2001). These studies demonstrated that teachers often experience a great deal of stress when there was an imbalance between the demands of the job environment and their response capability. Wolpin, Burke, and Greenglass (1991) found that the negative work setting characteristics resulted in greater work stressors that in turn were associated with increased teacher burnout thus resulted in decreased job satisfaction. Some other studies revealed that when these negative working conditions merge with poor staff communication and lack of social support that might result in increased teacher stress and burnout (Black, 2003; Brissie, Hoover-Dempsey, & Bassler, 1988; Burke & Greenglass, 1993).

Although there is a huge body of research on teacher stress and burnout, few studies have specifically dealt with computer teachers (see Deryakulu, 2005, 2006). Most of these studies concerning teacher stress and burnout used self-report as a source of data. There are extensive critiques related to the use of self-report measures as having significant shortcomings in assessing sources, types and levels of job-stress and burnout (see Guglielmi & Tatrow, 1998). In addition, self-report questionnaires are susceptible to the negative effects of social desirability (see Evers, Brouwers, & Tomic, 2002). Therefore, we decided to use a different data source to examine the sources of job-stresses for computer teachers in order to identify potential barriers to effective and efficient computer education.

The present study aims at analyzing the content of messages posted by Turkish computer teachers in an online asynchronous discussion forum about their occupational problems. We believe the examination of the content of messages in this specific online discussion forum would help us portray the major stress-inducing problems of computer teachers, as well as the types of social support provided by reciprocal online discussions. Furthermore, examining the kind of data derived from an open, spontaneous online discussion forum (not initiated by an external researcher) could help us identify new factors, which otherwise could not be obtained by self-reported measures.

Background

In the following sections, we first provide an overview on the nature of computer education in Turkey and review the existing research findings concerning stress and burnout in computer teachers. Second, we briefly introduce the

concept of social support. Lastly, we present the potential use of computer-mediated communication tools for providing online social support.

The Nature of Computer Education in the Turkish Educational System

In 1998, The Turkish Ministry of National Education (MNE) received a loan from the World Bank for the Basic Education Program (BEP). The primary aims of the BEP are to expand the scope of basic education and to improve the quality of education. The MNE also set such aims as to ensure that each student and teacher become computer literate, to integrate ICT into school curriculum, and to establish computer laboratories in schools (MEB, 2004). In this context, *computer* as an elective subject was added to the elementary school curriculum in 1998 as 1 or 2 hours per week for grades 4 through 8, and later was added to the academic high school curriculum in 2000 for grades 9 and 10. The primary aim of this course is to increase the number of computer literate students to facilitate and accelerate the diffusion of ICT usage across school curriculum. In 2005, the MNE allowed students to take computer subjects as electives from the first to the eighth grade. However, total teaching time is restricted to 1 hour per week.

Turkey still has difficulties in widening computer literacy among students and integrating ICT into school curriculum. Many students still do not have access to computers in the teaching-learning processes of other subjects such as science and mathematics in public schools (Olkun, Altun, & Smith, 2005). Thus, the only opportunity for many students to have access to computers (especially in high-poverty areas) might be elective computer subjects. However, there are 41,091 public schools housing 12.7 million students in Turkey, while the number of computer teachers who graduated from an accredited computer teacher-training program is only 10% of the number of schools (MEB, 2004, 2005b). According to these statistics, majority of the schools with computers have no computer teacher specifically trained for teaching computers. The MNE has been trying to solve computer teacher shortage by employing one computer teacher for two or more schools, employing computer coordinators as computer teachers or allowing schools to make contract with individuals who have the relatively appropriate background and skills. In short, computer teachers may come from different disciplines in Turkish educational system. This causes other problems especially dissatisfaction among accredited computer teachers in terms of employee rights and responsibilities. For example, computer engineers employed as computer teachers enjoy better payment and seniority advantages while accredited computer teachers do not.

Recently, Deryakulu (2005) examined the levels of burnout in Turkish computer teachers using the Maslach Burnout Inventory-Turkish Version. Because there are no norms for this inventory, by using percentage values, she exposed that the surveyed computer teachers displayed fewer symptoms of depersonalization, relatively moderate symptoms of emotional exhaustion and reduced personal accomplishment. In this study, using an open-ended form, lack of technical support, lack of student interest, and large class sizes were found to be the foremost stress-inducing problems that the computer teachers experienced.

Deryakulu (2006) also examined the factors predicting burnout in Turkish computer teachers. She found two significant predictors of emotional exhaustion and depersonalization. These were the types of problems they encountered while teaching computers under a heavy teaching load. These findings suggest that the more the teachers suffered from job-stress, the more they showed symptoms of burnout. As is well known, job-stress and burnout may cause decline in teachers' job performance and also may be detrimental to the physical and psychological health of teachers. Therefore, we have to think about the ways to reduce teachers' job-stress to prevent our teachers and students from its harmful effects. One of the effective ways to reduce job-stress is to provide social support to those who are stressed.

The Concept of Social Support

Social support has been identified as a resource provided by another person that enables individuals to cope with stress (Russell, Altmaier, & Van Velzen, 1987). There are many forms of social support. Beehr and Glazer (2001) have mentioned two main social support categories: (a) structural and (b) functional. According to Cohen and Wills (1985), structural support means that a relationship with one or more others exists. Structural support does not indicate however what other people do or what functions they perform for the focal person. Functional support, on

the other hand, implies that the supportive people are performing some functions for the focal person and this kind of support must perform at least one of these two functions: (a) emotional or (b) instrumental (Beehr & Glazer, 2001).

Emotional support means that the supportive people make the focal person feel emotionally better in a number of ways while instrumental support is the kind of help or assistance from other people that tangibly helps focal person to solve a problem or get a task done (Beehr & Glazer, 2001). Communicating with the focal person and providing him/her with feedback, praise or approval are the examples of emotional support. Instrumental support, on the other hand, includes such support as doing physical or mental labor or providing informational or financial resources that make it easier for the focal person to solve his/her problems or complete a stress-inducing task (Beehr & Glazer, 2001).

In school settings, support from a teacher's colleagues has been identified as preventive and remedial mechanisms for job-stress and burnout as well as an aid in coping with the job demands (see Brissie et al., 1988). Therefore, to widen the size of social interaction network of a teacher may increase the probability of available social support. Computer-mediated communication (CMC) tools can contribute to widening the size of social interaction network that can function as an alternative channel for giving and receiving social support.

Computer-Mediated Communication and Online Social Support

Computer-mediated communication refers to both synchronous and asynchronous modes of communication between individuals and among groups via networked computers (Naidu & Järvelä, 2006). Electronic mail, listservs, newsgroups and online discussion forums are just a few examples of CMC tools. Among these, online discussion forums provide an open electronic environment that allows the member (user) to post a message on a specific topic for others to read. Other members can respond to this message asynchronously. This usually leads to the emergence of threads, where a number of participants provide responses and counter-responses to an original posting, thus forming a dialogue among contributors. Participation to an open online discussion forum is voluntary. Therefore, it can be thought that participants are self-motivated, purposeful, and willing to express their experiences, emotions and thoughts, and listen to others' concerns related to the issue(s) being discussed. In this process, participants must engage in a "conversation" to express themselves to obtain and provide social support. Burleson and Goldsmith (1998, p.260) described conversation as "a medium in which a distressed person can express, elaborate, and clarify relevant thoughts and feelings." Obviously, such kind of personal participation requires friendly, safe, non-threatening, and comfortable environments. Caplan and Turner (2007) suggest that establishing such an environment may be easier and more effective if the conversation is computer-mediated. According to Walther and Parks (2002), the Internet is a successful medium for social support. Recent studies indicated that both emotional and instrumental support can be found in online communication (Eastin & LaRose, 2005; Weisskirch & Milburn, 2003). In addition, there has been strong evidence that frequent use of online communication increased perceived social support, which in turn reduced users' stress levels (Wright, 2000). Therefore, we tried to find answers to the following questions:
1. What types of job-related problems are reflected in online discussion forums by computer teachers?
2. What types of social support do computer teachers provide to one another within an online discussion forum?

Method

Sample

This study examined the content of messages posted by Turkish computer teachers to a specific online asynchronous discussion forum –entitled "Unfairness that Computer Teachers Encounter" (http://forum.memurlar.net/topic.aspx?id=58164). This specific forum was voluntarily opened by computer teachers on September 27, 2005, and turned out to be a very active threaded-discussion forum for these civil servants. Its main aims were to provide a common ground for computer teachers to share and discuss their occupational problems with their colleagues and to let the policy and decision makers of the Ministry of National Education know about these problems. Participation to the forum was also voluntary. In other words, we did not do any effort to get teachers involved in the discussions. There were 128 anonymous participants. We collected all forum postings in the period of 12 weeks. A total of 543 messages were analyzed.

Procedure

Content analysis procedures were applied to the messages. Content analysis is "a research technique for the objective, systematic, quantitative description of the manifest content of communication" (Berelson, 1952, p.18). Quantitative description process includes segmenting communication content into units, assigning each unit to a category, and providing tallies for each category (Rourke & Anderson, 2004). Hara, Bonk, and Angeli (2000) note that there is no standard scheme for analyzing the computer-mediated communication, but they suggest gathering quantitative information about the number and type of messages and qualitative information about the content of messages. We used the individual text-based message as the unit of analysis (segment) that has significant advantages such as being objectively identifiable for raters (see Rourke, Anderson, Garrison, & Archer, 2001). Since the forum message is a fixed unit which is determined by horizontal lines representing the start and end of sentences in the communication transcript, a separate segmentation procedure was not applied. Thus, a segmentation reliability coefficient was not calculated.

The variables investigated in this study were the types of job-related problems, which computer teachers mentioned in their messages and the types of social support which provided by teachers to one another via reciprocal discussions. When we were identifying the computer teachers' job-related problems we used an inductive approach since we did not have proper pre-determined problem categories. That is, coding categories were derived from the data set by the authors. While we were classifying the types of social support, we on the other hand, used a deductive approach. In other words, a well-founded pre-existing coding schema (i.e., emotional and instrumental support; see Beehr and Glazer, 2001) was used.

After multiple readings of the messages the authors derived tentative problem categories mentioned by the computer teachers. 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. During the coding, however, initial tentative coding categories were modified in accordance with the categories emerging from the data. As recommended by De Wever, Schellens, Valcke, and Van Keer (2006), we used more than one method for calculating inter-rater reliability coefficients in order to present more evidence about the reliability of classification. These coefficients are reported in Table 1. Differences in classification between the two raters were resolved by discussion.

Table 1. The inter-rater reliability coefficients

Method	*Classification*	
	Problem	Support
Cohen's kappa	0.98	0.92
Kendall's tau-b	0.98	0.93
Spearman's rho	0.98	0.94

Results

Problem Analysis

The content analysis revealed that almost half of the messages (49.5%; f=269) contained expressions of problems. Since some of these messages comprised of more than one type of problem a total of 375 problem expressions were identified. These problems were grouped under 12 categories as depicted in Table 2.

Table 2. The types of job-related problems of Turkish computer teachers

Problem Categories	f	%
1- Role Conflict	96	25.6
2- Inadequate Teacher Induction Policies	95	25.3
3- Lack of Required Technological Infrastructure and Technical Support	77	20.5
4- The Status of Computer Subject in School Curriculum	42	11.2
5- Lack of Appreciation and Positive Feedback from Colleagues	19	5.1
6- Unsupportive Administrators	9	2.4
7- Rapidly Changing Nature of Content Knowledge in Computer Education	8	2.1
8- Lack of Cohesive Computer Curriculum	8	2.1

9- Insufficiency of Pre-Service Teacher Training Programs	7	1.9
10- Large Class Sizes	7	1.9
11- Indifferent Students	4	1.1
12- Inadequate Supervision and Inspection	3	0.8
Total	*375*	*100*

As can be seen in Table 2, many of the problems stated by the Turkish computer teachers are mainly related to educational policy and organizational factors. The three most common job-related problems the Turkish computer teachers faced were role conflict, inadequate teacher induction policies, and lack of required technological infrastructure and technical support. As stated earlier, these problem categories were derived from the messages posted by computer teachers. For example, one computer teacher wrote the following about his/her experience of "role conflict":

> Now I terribly regret that I became a computer teacher. It has only been a month since I started to work but it seems like ten years. One thing that really upsets and makes me angry is to be looked at as "a handy-man", "a repairman". Besides the computers that need to be repaired at school, I also am frequently asked to fix the computers at teachers' boarding house. Honestly, I really want to leave my profession. We are teachers, for goodness sake not repairmen... (Message 206)

As shown in the excerpt, when teachers are expected to perform a demand that could be considered to be unrelated to their actual job description, stress is often the consequence. These kinds of demands often cause role conflict in teachers. Role conflict is defined as the simultaneous occurrence of two or more sets of inconsistent, expected role behaviors and has been found to be a major source of teacher stress in many different studies (see Cooper & Marshall, 1978; Kyriacou, 2001; Schwab & Iwanicki, 1982; Schwab, Jackson, & Schuler, 1986). Due to inadequate technical facilities and support services in most public schools, the computer teachers are expected to repair broken down computers or to clean computer labs in addition to their routine teaching responsibilities. Therefore, computer teachers' roles and responsibilities should be more clearly described.

Another computer teacher wrote the following complaint about the "inadequate teacher induction policies":

> ... Those who do not have relevant education are employed as computer teachers. As a result, those who graduated from universities after years of studying, sometimes ranks lower than computer coordinators. Who are these computer coordinators? They are teachers from other disciplines. Following a short-term in-service education, they are employed as computer teachers in the case of lack of accredited computer teachers. But now it seems there are plenty of those people around… I now would like to ask our Minister of National Education, why we, the computer teachers, are put in a position to compete with computer coordinators who in reality lack the real computer education. And why do you employ them at well-equipped schools, and leave repairs and fixing jobs to the properly-educated computer teachers. (Message 192)

As mentioned before, because of the shortage of accredited computer teachers, persons with different backgrounds such as engineers, programmers, classroom teachers or statisticians can be employed as computer teachers in the Turkish school system. Among them, only the accredited computer teachers have proper and higher level of education related to teaching computers. The literature suggests that higher level of education usually leads to higher career aspirations (Friedman, 1991). Depending on their higher career aspirations, accredited computer teachers might expect more respect of their expertise, and consequently might be relatively more sensitive or intolerant of the employment of out-of-field persons as computer teachers at public schools. Instead of employing out-of-field persons as computer teachers, existing computer teachers should be utilized more effectively. Namely, computer teachers should not be employed at schools which have no computers.

A computer teacher wrote the following about the "lack of required technological infrastructure and technical support" preventing effective and efficient computer education in schools:

> ...in my computer lab, seven of the computers have Windows 3.1, the other six have Windows 95. Although it is the year 2005, we use the first version of Windows operating system. …The keyboards

and mice are out of order. I have to explain MS Word, MS Excel and other subjects by writing it on the blackboard. In some schools, some of our colleagues work with 486 DX computers. The system configurations of computers are so out of date that it is impossible to update to new OS and software. Moreover, in some schools there are computer teachers but no computers. (Message 319)

Similar complaints could be found in the following quote by a computer teacher about "the status of computer subject in school curriculum" and the "lack of required technological infrastructure and technical support" in schools:

Look friends; let's raise our voices against the move toward lowering computer courses to one hour per week. I give computer courses at two different schools, one of which does not have a computer lab. I am trying to teach computers to the students most of whom have never set an eye on one. In the other school I work for, there are really out-dated machines that only come to life in 15 minutes after switching on. So the result is I spend half of one-hour-class to start the computers and to restore classroom discipline. How much can the students benefit from this? Can anybody have a guess? (Message 470)

As stated earlier, the status of computer subject in the Turkish elementary school curriculum is elective and the total teaching time is merely one hour per week. Accordingly, the computer teachers frequently considered the status of this subject to be a restrictive factor decreasing the effectiveness and efficiency of their teaching practices. They consistently expressed that, because the computer subject was one hour per week, they were not able to provide enough hands-on practice for each student. Furthermore, because the computer subject was elective, the majority of students considered this subject to be unimportant. Similarly, Hendley, Stables, and Stables (1996) suggested that the subjects which occupy little time in the curriculum may be regarded as of low status by students. Therefore, the weekly course hours should be increased to provide enough hands-on practice for each student. Increasing the total teaching time may also help to improve students' perceptions regarding the significance of this subject.

Furthermore, without well-equipped computer labs and technical supports it is impossible for computer teachers to continue their classes properly. Studies suggest that poor working conditions including lack of educational supplies and inadequate resources for teaching may lead to job-stress in teachers (Abel & Sewell, 1999; Kyriacou, 2001). Besides, when lack of required technological infrastructure and technical support merge with the limited teaching time, teacher stress and ineffective computer education seem unavoidable. For an effective and efficient computer education in schools, technological infrastructure, hardware and software investments should not be one-shot investments. Instead, continuous technological renovation and technical support services should be provided.

Following excerpt is a typical complaint about the "lack of appreciation and positive feedback from his/her colleagues" from a computer teacher:

It is my third year in teaching. I have chosen willingly to become a computer teacher with full of ideas in the beginning. However all my enthusiasm has gone astray after the first year... For one thing, you are extremely overloaded with works. I have given computer courses to the teachers at every seminar session in my school. While the computer coordinators are paid a hell of a lot of money for doing such courses, I was even spared a simple "thank you." I designed the school's web site… which I believe could not to be done for less than $500 by somebody from the outside… I was criticized for not updating it regularly. I don't want to be misunderstood on money matters, but I certainly think that one needs to be at least appreciated for the work one does. As a result, now my feet go backwards when I go to my classes. Does a working person look for his/her retirement on the third year, well I do... I do love teaching, but not under these conditions. It is high time that our complaints should now be heard and acknowledged by authorities. Reading similar complaints from our colleagues, we feel we are not alone, but these should not fall on deaf ears. (Message 118)

Teachers usually need to receive positive feedback, praise or approval from their colleagues and support from administrators to cope with stressful job demands. Otherwise, they may feel that their work is not important enough to justify someone else's attention and they are alone in trying to do their work (see Pines, 2002). Lack of feedback and support were identified as causing additional stress in teachers (see Brown & Nagel, 2004; Kyriacou, 2001). However, job-stress can be reduced by positive communication and supportive relationships among colleagues. In

this context, CMC seems to open new doors for teachers who need to set up supportive communication networks with their colleagues.

Furthermore, unsupportive administrators, the rapidly changing nature of content knowledge in the field of computer education, lack of cohesive computer curriculum, poor university preparation, large class sizes, indifferent students, and inadequate supervision and inspection were found to be relatively less frequently mentioned problems of the Turkish computer teachers. Due to dynamic nature of their field of study, the computer teachers need to continuously update their content knowledge. According to them, the main barrier was the insufficient in-service training opportunities. Therefore, computer teachers should be provided with rich and continuous in-service training. The teachers also expressed that in addition to the lack of well-equipped computer labs, insufficiency of pre-service teacher training programs, out-of-date computer curricula and large class sizes were increased the students' indifferences and inattentiveness. These problems were also affected negatively the teachers' effectiveness in the computer classes. Thus, pre-service computer teacher training programs should be reformed. The elementary and secondary schools' computer curricula should frequently be revised.

One computer teacher noted the following about his/her experience of "inadequate supervision and inspection":

> Last year a supervisor visited one of my classes and just because one of the computers was not loaded with the MS Word (the students have removed it) he graded me the lowest. But, the fact is that now three of the computers are out of order in the computer lab and the school administration refuses to have them repaired claiming they don't have money to spare for it. Now I ask you, who is going to be responsible in this case? Is it my fault? (Message 286)

According to the contemporary supervision approaches, supervisors should be a guide for teachers. However, supervisors' lack of technological knowledge and skills may hinder their ability to make changes in their supervision practices. A possible solution could be to train supervisors both about the computer technology and the proper criteria for evaluating effectiveness of computer education.

Social Support Analysis

The content of computer teachers' online discussion forum messages were also analyzed in terms of the types of social support provided. These categories are reported in Table 3. Majority of the messages (87.9%) were identified as providing with "emotional" support. Studies revealed that emotional concerns and support are widespread in CMC. In a study by Anderson and Lee (1995), it was found that beginning teachers offered emotional and moral support (personal concerns), rather than curricular and instructional advice (technical concerns) in their e-mail messages. Similarly, Nicholson and Bond (2003) found that pre-service teachers used the electronic discussion board by expressing many thoughts, experiences, and emotions. Over time it became a place of professional support and community.

Table 3. The types of social support provided by messages

Social Support Categories	f	%
Emotional Support		
Feedback	410	75.5
Approval/Praise	51	9.4
Humor	16	3.0
Subtotal	477	87.9
Instrumental Support		
Informational	17	3.1
No Social Support	49	9.0
Total	*543*	*100*

In the present study, the most frequent subtype of emotional support was *feedback* (75.5%) (e.g., teachers brought relevant personal experiences or thoughts into the discussion as a response to another message). Sharing personal experiences and thoughts has been considered to be useful for establishing and maintaining "group cohesion," a key

feature of supportive online groups. Babinski, Jones, and DeWert (2001) exposed that teachers were prone to express their immediate personal experiences and ask for advice in online discussion forums. The importance of knowing peers' rich resources of practical knowledge in the professional development process is often emphasized. When professionals search for similarities from across the profession, it can "yield a fresh exchange of ideas, practices, and solutions to common problems" (Cervero, 1988, p.15 as cited in Anderson & Kanuka, 1997). Besides, Beehr and Glazer (2001) suggest that by conversing with others and learning about their experiences, people might learn to cope with their own stress factors. Therefore, the examined online discussion forum can be described as a very rich professional platform that teachers heavily exchanged their personal professional experiences and thoughts in order to draw attention to and find solution alternatives for their job-related problems.

Other subtypes of emotional support were *approval / praise* (9.4%) (e.g., teachers expressed their emotional appreciation or praise as a response to another message), and *humor* (3%) (e.g., teachers told a joke or drew attention to an irony related to the topic being discussed). On the other hand, merely 3.1% of the messages were identified as providing "instrumental" (*informational*) support (e.g., teachers provided with specific information to their colleagues when they asked for) while 9% of the messages did not include any type of social support.

In an ironic response to another teacher's message who expressed his/her resentment against lowering the total teaching time of computer courses in the elementary schools, one computer teacher wrote:

> …I think one hour for computer courses is enough... Yes, that's right... You have heard it all right. What I am simply saying is that it takes at least a half hour to start the computer in our lab and another half hour to shut it down... (Message 406)

Humor has been considered a good coping strategy (Austin, Shah, & Muncer, 2005). Coping however, refers to the stressed person's own behavior, actions or intentions (Beehr & Glazer, 2001). When humor comes from other people, it can function as an emotional support that might make stressed people feel emotionally better. Furthermore, humor is one of the verbal immediacy behaviors that can lessen the psychological distance among users in an online discussion forum (Swan, 2002). The computer teachers used humor occasionally, yet effectively, to make their colleagues feel emotionally better and to air their problems.

Because the computer teachers' job-related problems mostly resulted from educational policies and organizational factors rather than the teachers' personal deficiencies, both individual information seeking and informational support were extremely rare. However, in a case of a teacher asking for a specific type of information, his/her colleagues immediately provided him/her with such information. We observed that the teachers mainly asked for information from their veteran peers about their rights and responsibilities in schools, and potential solution alternatives for their technological problems in computer labs. These kinds of information exchanges among teachers are the instances of informational support. Here is an example of a reciprocal correspondence concerning this kind of information exchange:

> ...The students delete program files of computers in order to prevent class work time and to instead engage in games. Could anybody help me to put an end to this? (Message 229)

> ...Currently I use "Deep Freeze." I highly recommend it. Also I think the "Ghost", "NetOp School" or "NetSupport" could be useful... Here's how you can set up and use the above mentioned software... (Message 248)

Lastly, one computer teacher wrote the following to express his/her approval/praise about the content of ongoing discussions:

> ...Thanks ever so much for the information you've passed on. I rather think deleting the program files by the students is as important as the other problems cited in the forum. To discuss in details and to explain which software could be used in order to put an end to such problem has certainly been useful to at least solve one of the problems we face. (Message 237)

To provide a person with approval or praise concerning a particular behavior might improve his/her emotions such as self-confidence, self-esteem, and enthusiasm increasing the probability of performing this behavior. Approval and

praise are also described as useful strategies to foster social interaction among participants in online settings (see Hara et al., 2000). By providing with such online emotional support, the teachers created positive communication and supportive relations among their colleagues, and helped them to feel emotionally better.

Discussion and Conclusion

This study examined the content of messages posted by Turkish computer teachers in an online discussion forum about their job-related problems. Findings suggest that computer teachers face a number of problems mostly resulted from educational policies and organizational factors such as role conflict, inadequate teacher induction policies, and lack of technological infrastructure and technical support. The frequency and variety of these problems indicate a need of a national comprehensive technology planning. According to Anderson (1999), an important step in technology planning is to face the honest reality of a condition, then to work together to build a strategy for success. Therefore, determining computer teachers' job-related problems could provide the necessary data for the first step of technology planning. In this context, CMC can be an excellent channel for information exchange. Indeed, the value of CMC lies in its ability to facilitate professional collaboration between teachers and to encourage critical reflection on educational policy and practice (Hawkes & Romiszowski, 2001). Moreover, because of the anonymity, teachers can be more open and honest in CMC environments, especially in online forums. Therefore, educational policy and decision makers might benefit from CMC as a feedback mechanism to analyze the context, determine the needs and specify the goals for successful implementations. System developers must consider designing an online system that provides rapid information flow from school teachers to the central and/or local policy centers.

Another noteworthy finding of this study is that the computer teachers mostly share their personal-professional experiences and thoughts via online discussions. These personal experiences and thoughts and emotional support were very common in the reciprocal online discussions. Therefore it can be concluded that the online social interaction among the computer teachers was quite reflective. Reflectivity is considered to be the heart of professional development. Reflection is a continual process that engages teachers in framing and re-framing problems while designing and evaluating solutions (Hawkes & Romiszowski, 2001). Reflective teachers tend to examine and re-examine their personal-professional experiences to improve their teaching practices and working conditions. The present study confirmed that the Turkish computer teachers used the online discussion forum as a social-professional platform for sharing their job-related problems, suggesting potential solutions, and providing and/or receiving social support. Professional development for teachers constitutes formal and informal processes of knowledge and skill building (Hawkes & Romiszowski, 2001). In this context, CMC tools have the potential to become rich, flexible, formal or informal, and personal learning environments (Attwell, 2006; Downes, 2006). For example, case libraries, online libraries, video-cases, online technical services, special interest groups, access to written regulations, social support groups, and open-access curriculum materials are such applications that can be available for teachers in CMC environments.

Finally, content analysis technique provides an invaluable tool to understand the nature of communication and social interaction patterns among users in online environments. It is hoped that the findings of this study could be helpful in stimulating educational researchers to pay attention to alternative data sources such as communication transcripts of teachers' discussion forum messages to better understand what types of problems they have and what types of support they need. Further studies are needed to uncover several points including what are the essential role of computer teachers, and to what extent they felt supported or became relieved as a result of online discussions. Lastly, the variables that can affect the functionality and viability of online groups such as group size, group compositions, and participation degree of users are the issues needing further exploration.

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