Professional Problems Experienced by Information Technology Teachers and Suggested Solutions: Longitudinal Survey

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Summary

The study aimed to determine the opinions of teacher candidates in the fourth year of Computer Education & Instructional Technologies department (CEIT) on the Problems Experienced by Information Technology (IT) Teachers and Suggested Solutions and it has been designed in case study routine taking place within qualitative research tradition and in a longitudinal survey model. The final year IT teacher candidates receiving education in Ankara University Educational Sciences Faculty CEIT department in academic years 2011-2012 and 2012-2013 have formed the study group of the research (N=123). The data obtained in the research by open-end questionnaire have been analysed and interpreted by inductive encoding technique, freuency analysis and descriptive content analysis. At the end of the study carried out, it has been determined that the IT teacher candidates have handled in two sub-dimensions the problems experienced by the IT teachers, these being, problems towards the courses the IT teachers attend and problems regarding the professional lives of IT teachers and suggested solutions in line with these. The leading problems towards the courses the IT teachers attend are that the courses are optional, the courses are grade-free, the course hours are few, the significance of IT not being comprehended very well by the executives, teachers, parents and students, inadequacy of physical means of IT classes and references of the course. And, the main problems regarding professional lives of IT course teachers are the duty, power and responsibility of IT teachers not made clear enough, difficulties in formative teacher practice, course hours which have to be completed by IT teachers not being able to be completed and problem of permanent staff, the courses that must be attended by IT teachers being taugth by teachers from other branches, lack of executives and experts trained from a field to supervise IT and formative teachers. And, the suggested leading solutions of participants on the problems experienced are that the duty, power and responsibility of IT teachers have to be made clear and some regulations must be made towards IT courses. Moreover, in the study, the teacher candidates have reported that the FATİH project started to be applied could be a chance to overcome such problems.

Keywords: *Information technologies teacher; Computer education and Instructional Technologies Department; professional problems, suggested solutions, FATİH project*

Introduction

New ones are being continued to be included day by day in qualified human power particularities required by the age. For such reason, maintaining learning everywhere and for a lifetime has become a must and questions how could knowledge be adapted to the learner have begun to gain significance. The progresses in the information technologies and integration of such progresses with instructional design have increased day by day the interest in technology based learning. Computer use in education has started in 1960s upon computer supported education practices and has gone on with internet use in education in 1990s (Kim, 2006, 1). While the slogan "computer for everyone" in 1970s has left its place to the slogan "internet for everyone" in 1980s, when the subject is considered

from the point of view of literacy types, it can be seen that ABC literacy today has left its place to concepts such as, computer literacy, internet literacy, visual literacy, knowledge literacy (Keser, 2011).

Societies are aiming to train individuals who can use technology correctly and effectively. Individuals have to be trained as good consumers of knowledge who can have access to true and reliable knowledge in a short time, good producers of knowledge who can generate new knowledge from the information they have access to and persons who can market the knowledge they've produced, convert the knowledge to power and money (Keser, 2011). And, one of the most significant partners in the process of training the individuals in this way and in order such individuals can use technology correctly and effectively is the information technologies trainers. Training of the information technologies trainers is coming out as a quite significant element in integration of technology to education. To train the teachers to teach the computer courses taking place in the primary and secondary education schools in our country within this context, CEIT departments have been established in 1998 during restructuring process of universities and the title "computer teacher" has been given to the graduates from such departments (YÖK, 1998). The number of Computer Education & Instructional Technologies departments (CEIT), which have produced their first graduates in 2003 has reached to 77 as of 2012 year-end and 50 out of these departments are admitting students. And, in the universities remaining, student admittance can't be done due to reasons such as, lack of academicians. The number of CEIT depratments, numbers of which are increasing year by year and the numbers of students admitted to such departments are given in Table 1 (ÖSYM, 2012).

Table 1. CEIT Departments Admitting Students and Numbers of Students

Type of University	Local		Foreign	Total
	State	Foundation universities		
Number of CEIT Departments admitting students	39	6	5	50
Quotas of CEIT Departments	2330	285	365	2980

As pursuant to resolution dated 05/07/2012 and numbered 97 of the Ministry of National Education Turkish Education Board, in addition to graduates from Computer Education & Instructional Technologies departments (CEIT), graduates from departments which could be reference for the field, too, can be appointed as a computer teacher. In the respective resolution, the departments which could be reference to the field are specified as follows: Computer Teachership, Computer Systems Teachership, Computer and Control Teachership, Electronics and Computer Teachership, Computer Engineering, Computer Sciences Engineering, Control and Computer Engineering, Mathematics-Computer Department, Statistics and Computer Sciences, Computer Technology Department /Computer Technology and Information Systems Department (B.Sc.), Information Technologies. Graduates of said departments can conduct under title of computer teacher the courses attended by IT teachers in schools.

CEIT graduates who have been started to be appointed as Computer Teachers since 2003, have been started to be appointed as IT Teachers since 2006. The reason of this difference in title comes due to the decision taken for the course "Computer" taught as an optional course in secondary education schools be taught as an optional course in 1-8. Classes in primary education schools under title "Information Technologies" as result of developing the educational program in 2006 (MEB, 2006). The number of IT teachers started to be appointed by the Ministry of National Education since 2003 has reached up to 305745 as of 2012 year-end (MEB, 2012a).

Table 2. Numbers of IT Teachers Recruited by First Appointment on Yearly Basis

Year	Application and Appointment guide	Number of IT Teachers Recruited by First Appointment		Total	Total Number of Teachers Recruited by First Appointment		Total
		Permanent Staff	Contracted		Permanent Staff	Contracted	
2012	February 2012-1	143	0	456	17000	0	54809
	August 2012-2	313	0		37809	0	
2011	June 2011-1	366	0	499	26845	0	45197
	August 2011-2	118	0		10352	0	
	November 2011-3	15	0		80	0	
2010	June 2010-1	194	0	1096	8982	0	35916
	November 2010-2	902	0		26934	0	
2009	February 2009-1	418	0	914	7535	0	23035
	August 2009-2	190	306		4500	11000	
2008	February 2008-1	400	0	1526	4786	0	22286
	August 2008-2	918	208		15200	2300	
2007	February 2007-1	500	0	1700	9800	0	29100
	August 2007-2	700	500		9300	10000	
2006	January 2006-1	1200	0	2696	19656	0	35956
	August 2006-2	796	200		9800	7000	
2005	January 2005-1	685	0	1085	9800	0	20099
	August 2005-2	400	0		10299	0	
2004	February 2004-1	700	0	1561	10000	0	19267
	August 2004-2	861	0		9267	0	
2003	August 2003	750	0	750	9800	0	20080
Total		10569	1214	12283	257745	30300	305745

The "Primary Education Optional Computer (4-8. Classes) Course Educational Program" adopted by Resolution dated 1998 and numbered 180 of the Head Council of Education and Morality had been started to be taught in schools as a 2-hour mostly applied course and assessment of the course by a grade had been done. However, upon resolution dated 2006 and numbered 347 of the Head Council of Education and Morality, assessment of the course by a grade has ended with the new peogram and the course has taken its place among optional courses under name Information Technologies.

upon resolution dated 2010 and numbered 75 of the Head Council of Education and Morality, the course has been lifted by including it in scope of free activity in 1.,2.,3.,4. and 5. Classes and it has been started to be taught as a 1-hour optional course in 6., 7. and 8. classes. Lately, in 2012, with the system known as 4+4+4, the name of the course Information Technologies has been changed to "Information Technologies and Software" upon the "Secondary School and İmam Hatip Secondary School Information Technologies and Software Course (5, 6, 7 and 8. Classes) Educational Program" published by the Head Council of Education and Morality, it has taken its place among courses that could be taught for 2 hours in 5.,6.,7. and 8. classes.

And, in secondary education, the Computer course taking place among general culture courses since academic year 1986-1987 has been conducted as 3-hours a week courses for high school final year students. From academic year 1987-1988, the Computer course has taken place among optional courses in secondary and high schools, as compulsory course in electrical and electronics departments of girls' vocational high schools and industrial vocational high schools (Keser, 1988; 2011). In 2005, with the new educational program, the name of the course has been changed to "Knowledge and Communication Technology" and it has been started to be taught as optional. The course Knowledge and Communication Technology has been dealt with in the weekly course Schedule under heading "2.Group Optional Courses" and evaluation of the course by a grade was maintained. Upon the latest changes, the study level and distribution according to school type of 2012-2013 academic year Information Technologies courses are given in Table 3 (TTKB, 2013).

Table 3. 2012-2013 Academic Year IT Courses

School Type		Status	Course	Weekly Course Hour
Primary Education Institutions	(Primary School and Secondary School) 5-6-7-8. Classes	Optional	Information Technologies and Software	2
Secondary Education	Anatolian High Schools	Optional	Knowledge and Communication Technologies	2
	Anatolian Fine Arts High Schools	Optional	Knowledge and Communication Technologies	2
	Science High Schools	Optional	Knowledge and Communication Technologies	1 or 2
	Vocational High Schools	Compulsory	Knowledge and Communication Technologies	2
	Healthcare High Schools*	Compulsory	Knowledge and Communication Technologies	2
	Social Sciences High Schools*	Optional	Knowledge and Communication Technologies	2
	Sports High Schools	Optional	Knowledge and Communication Technologies	2

*Those subject to "International Baccalauriate" program in Social Sciences High Schools could select one of Baccalauriate Optional courses which the course "Knowledge and Communication Technologies" that is 4-6 hours in 10. and 11. Classes is included in.

In schools connected to the Ministry of National Education, studies towards technology use in education and the number of IT teachers in parallel with this are increasing. However, inversely proportional with this, it is being seen that the number of courses taught by IT teachers is reduced

and these are taken within scope of optional courses having no grade. Even though significant steps have been taken in subjects of training teachers regarding IT course, preparing the instructional program, establishing the IT classes, it is seen that from 2010 the significance of courses towards IT and the position of IT teachers are being argued. On the other hand, works by the Ministry of National Education are under progress to implement FATİH (Increasing Opportunities and Improvement of Technology Movement) Project aimed to realize IT supported instruction by providing IT tools to classrooms until year-end of 2013 at primary and secondary education levels (Keser, 2011; MEB, 2011; MEB, 2012b). However, it is seen that no study is being made regarding the place of IT teachers in this project under conduction (Eren, & Uluuysal, 2012). With FATİH Project, structuring works of which are under progress currently, the tasks of IT teachers are under debate and within this context, expectation is increasing for job definition of IT teachers be made clear.

As in parallel with the progress of technology, the need felt for IT teachers is increasing day by day in use of technology by individuals effectively and in use of technology in education effectively. However, it is seen that IT teachers' professional problems and their problems regarding IT courses are increasing in time and solutions towards such problems are not produced. On the other hand, in newspapers, magazines and TV programs, online media being at first place, IT teachers mention frequently about their problems and that solution must be produced for such problems. Observing these problems one-to-one in places where IT teachers exercise duty and presenting suggested solutions towards such problems are seen quite significant in terms of enlightening the future of IT teachers and CEIT departments. Although there are various studies present wherein IT teachers have reported opinions regarding the problems they experience, it has been required to apply to the views of the future IT teachers on their present problems and their suggestions on these. In the research made in line with this, it has been aimed the problems the IT teachers have experienced be determined by the IT teacher candidates in the schools where they exercise duty and suggestions be produced for solution of the existing problems. As in line with the aim of the study, answers to the following questions have been searched for according to the observations of IT teacher candidates in schools they went for application under scope of courses School Experience and Teachership Practice;
    a) What are the problems the IT teachers experience?
    b) What are the suggested solutions regarding the problems the IT teachers experience?

Method

Research Model

The research has been designed in *longitudinal* survey model in *case study* routine taking place in qualitative research tradition. Qualitative research is a research method where qualitative data acquisition methods like observation, interview and document analysis are used in, it is aimed to present the facts in their natural medium in a realistic and integrated way. And, case study routine tries to present the existing practice examples with the question "how" (Yıldırım and Şimşek, 2008). In order to determine according to the observations of the teacher candidates the problems regarding IT teachers and the variations in the suggested solutions towards such problems, *trend studies* method from among the longitudinal research types has been used in the study. Such type of researches are being made to examine a group possessing common qualities, determine the general trend of a group and present the changes and trends exhibited by same individuals depending on time (Fraenkel and Wallen, 2006; Gay, Mills and Airasian, 2006; Büyüköztürk and coll., 2008). General trend studies are studies which follow the changes of a certain group in time. In such researches, sample groups can change in different times (Krathwol, 1998).

Study Group

123 teacher candidates, 63 males and 60 females, studying in final year in Ankara University Educational Sciences Faculty CEIT Department in academic years 2011-2012 and 2012-2013 form the participants of the research. In the study designed by trend studies method from among longitudinal

research types, the numbers of final year students who took place in the research in academic years 2011-2012 and 2012-2013 are given in Table 4.

Table 4. Numbers Courses of Final Year Students Participated in the Research

Academic Year	Sex		Total
	Male	Female	
2011–2012	29	26	55
2012–2013	34	34	68
Total	63	60	123

As it is already known, the teacher candidates studying in CEIT final year are taking the course School Experience in 7. Semester and Teachership Practice in 8. semester. The main reason why the research has been made at the end of 8. semester with teacher candidates studying in CEIT Department final year is the idea that such students have already taken the courses, teachership professional knowledge, field knowledge and general culture, they can make observation in application schools under scope of the courses, School Experience and Teachership Practice and they have acquired the experiences to follow a more integrated approach in analysing the present case.

Data Acquisition and Analysis

In stage of data acquisition, first of all, the teacher candidates taking place in the research have been informed on the objective of the research. Then, later on, as in line with the objective of the research, two open-ended research questions have been given to the teacher candidates, these to be answered in written;

According to your observations in the schools you've gone for practice under scope of the courses, "School Experience and Teachership Practice";
a) What are the problems the IT teachers experience?
b) What are your suggested solutions on the problems the IT teachers experience?"

By this way, means have been provided to the teacher candidates to express their thoughts freely and in detail.

In stage of analysing the data obtained from the answers the teacher candidates have given to the open-ended questions, use has been made of inductive encoding technique, frequency analysis and descriptive content analysis technique. The concepts lying behind the data obtained by inductive encoding technique and the correlations between these concepts have been unveiled (Yıldırım, & Şimşek, 2008). By the frequency analysis used in the study, intensity and significance of a certain element have been determined by presenting quantitatively the incidence frequency of units (Tavşancıl, & Aslan, 2001). By this way, the qualitative data have been digitized, thus the reliability of data has been increased, bias has been reduced and means to make comparison between data has been ensured (Yıldırım, & Şimşek, 2008). The data obtained by means of descriptive content analysis used in the study have been summarized according to themes specified in advance and the results obtained have been interpreted within frame of cause and effect relationship (Yıldırım, & Şimşek, 2008). During analysis of data, two researchers have themed the data separately, similar themes have been accepted and interpreted. Moreover, in the study, research questions have been supported by direct quoting from interview texts where appropriate. Some of the data obtained from the research have been given as they are and by this way, persuasiveness has been tried to be ensured (Wolcott, 1990). In order the direct quotations taken from the teacher candidates not to specify identity within frame of the research ethics, the names of the participants have been encoded as "K+Number".

Findings and Interpretations

At the end of the study carried out, it has been detected that the IT teacher candidates have handled in two sub-dimensions the problems the IT teachers experience, these being, problems towards the courses the IT course teachers are teaching and problems regarding professional lives of IT course

teachers and that they've presented suggested solutions in this direction. The problems specified and the suggested solutions have been presented in this section under respective titles.

1. IT Teachers' Problems Towards the Courses They Teach and Suggested Solutions Regarding Such Problems

According to the views of IT teacher candidates, IT teachers' problems towards the courses they teach and the suggested solutions on such problems have been gathered under five themes. IT teachers' problems towards the courses they teach and distribution of IT teacher candidates according to years they receive education are given in Table 5.

Table 5. IT teacher candidates' distribution regarding IT teachers' problems towards the courses they teach

| | Academic Year | | | | Total | |
| | 2011–2012 | | 2012–2013 | | | |
Problem;	f	%	f	%	f	%
IT course being optional	41	74.5	50	73.5	91	74.0
IT course being grade-free	34	61.8	42	61.8	76	61.8
Course hours allocated to IT course being very few	31	56.4	41	60.3	72	58.5
The significance of IT not being comprehended very well by the executives, teachers, parents and students	24	43.6	33	48.5	57	46.3
Physical means of IT classes and course references being inadequate	20	36.4	25	36.8	45	36.6

In Table 5, it can be seen that the teacher candidates have reported that the most significant problem IT teachers have experienced towards the courses is that the IT courses are optional in both academic years. The data obtained have shown that the problems regarding "course hours allocated to IT course are very few" and "the executives, teachers, parents and students couldn't understand the significance of IT" have increased in academic year 2012-2013 compared with previous year. Moreover, in the study it has been determined that no change has occurred in the problems and the priority orders of the problems detected from both academic years. These problems determined by IT teachers regarding IT courses exhibit parallelism with other researches made in the field regarding IT teachers (Kabakçı, Akbulut, & Özoğul, 2009; Deryakulu & Olkun, 2006; Kıyıcı & Kabakçı 2006; Orhan & Akkoyunlu, 2003). The problems determined in this line have been detected as result of many researches, too, and it has been seen that such problems haven't been resolved until today. Within this context, IT teachers' problems towards the courses they teach and the suggested solutions on such problems have been detailed under the following headings in line with the data obtained from the IT teacher candidates on this subject.

1.1. IT Course being Optional: Among the problems the information technologies teacher candidates have observed, the one occupying the first place is that the course is under scope of optional courses (N=91). The teacher candidates report that because the course is optional, this causes problems like below;

- Students' interest in the course is reduced (N=47),
- It causes the course to be considered as if it is a useless course (N=39),
- The students can't be motivated on the course (N=34),
- It influences negatively the angles of view of other teachers (N=33),

On the subject, the IT teacher candidate K7 expresses strikingly as follows the angle of view of a teacher from a different branch against the course.

> *"The Science and Technology teacher says to the IT teacher, "as a matter of fact, your course is optional and it has no grade, too. If you can give me one of your lessons so that I can teach extra hour, because, I couldn't catch up with my topic."*

The teacher candidates present suggested solutions as below for this problem;
- IT courses should be taken under scope of compulsory courses (N=65),
- IT courses should be spread to all educational levels (N=41),
- Optional courses regarding IT should be increased, at least one being compulsory (N=21).

In case these suggestiona are considered, the IT teacher candidates are pointing out that interest in IT course would increase and technology qualifications could be made acquired by students at early ages, IT teachers would carry out their jobs more productively and they would be so satisfied. Moreover, the teacher candidates are emphasizing that the angles of view of executives and other teachers against the course and the teacher of the course would be more positive.

1.2. IT Course being Grade-Free: The IT teacher candidates are indicating that the course being grade-free is a crucial problem (N=76). The teacher candidates are indicating that the course being grade-free causes negativities as below;
- Difficulty is being experienced in attracting the interest of students to the course (N=37),
- The students can't be motivated against the course (N=28),
- The course is seen just as a game or a course/time to go on the internet (N=25),

As regarding the subject matter, during a course given by a teacher candidate (K33) in application schools, an 8. year student has defined the course as follows by his own point of view and this in fact is presenting the course definition in the student's mind when a course is grade-free;

> *"Teacher, this course has no grade and moreover, no questions are asked in SBS from this course. Who cares Excel, what's its use to me, if I want to be a civil servant, I'd learn it for the calculations when the time comes."*

For this problem, the teacher candidates are presenting suggested solutions as below;
- IT courses should be included in scope of courses which are evaluated by a grade (N=55),
- Evaluation of all courses by a grade should be abolished (N=21),

The IT teacher candidates report that in case IT course is taken under scope of courses evaluated with a grade, motivations of students towards the course would increase, acquisition of IT qualifications would be impacted positively and the course could be evaluated healthly. The teacher candidates are emphasizing furthermore that the IT use qualifications of the students should be determined and the students should acquire at early ages the habit to use correctly the technology and they also emphasize the significance of IT courses.

1.3. Course Hours Allocated to IT Course being very few: And, one of the problems the IT teacher candidates have observed is that the course hours are very few (N=72). The teacher candidates are indicating that the weekly course hours being few cause negativities as below;
- The subjects and activities can't be caught up with (N=46),
- The subjects are divided thus understanding the subjects by the students becomes difficult (N=26),

As regarding the subject, a teacher candidate (K26) points out as below the difficulty arisen from the weekly course hours being few.

> *"The IT course is a course of practice mostly. In such a case, carrying out the activities to be made acquired within frame of the program doesn't fit most of the time into a one-hour course time. Even if it is wanted to continue with the incompleted activity next week, the long time elapsed between the courses prevents to obtain sufficient efficiency from the student."*

The teacher candidates are proposing the following suggested solutions for this problem;

- Since, the course is an applied course weightedly, the weekly course hours should be increased (N=25),
- New courses should be opened in schools in parallel with the educational programs of the CEIT department students receiving education in universities (N=21),
- IT courses should be given at every instructional level (N=20),

In case these suggestions are taken into consideration, the IT teacher candidates indicate that a technology education of desired quality could be given within frame of the educational program applied to the students.

1.4. The Significance of IT not being Comprehended Very Well by Executives, Teachers, Parents and Students: It is seen that the IT teacher candidates perceive as a problem the significance of IT not being comprehended very well by the executives, teachers, parents and students (N=57). The teacher candidates indicate that such case causes negativities as given below;

- The significance of the course not being understood (N=29),
- The general examinations generally being made to coincide with hours of courses like painting, physical training, music (N=11),
- Other branch teachers requesting the course hour (N=9),

As regarding the significance of IT not being comprehended very well by the executives, teachers, parents and students, a teacher candidate (K17) summarizes as follows the attitude against the course,

> *"Courses taught by IT teachers in schools are named as a "game course" and not as a normal educational course. The other teachers say to the students who are to take the IT course "Come on to the game". And, the students are motivated as a game course and thus come to the class so."*

On this problem, the teacher candidates present suggested solutions as below;

- In-service trainings should be given to the executives and teachers on the significance of IT (N=11),
- Within scope of FATİH Project counselorship task should be assigned to the IT teachers on the significance of IT (N=9),

Thus the IT teacher candidates indicate that accurate and effective use of technology in education could be ensured by making the significance of IT be comprehended. Moreover, the teacher candidates report that the teachers and executives do not possess enough knowledge and skill on the use of IT in education and emphasize that the IT teachers should guide them on this subject matter.

1.5. Inadequacy of Physical Means of IT Classes and References of the Course: And, one of the problems observed by the IT teacher candidates is the inadequacy of physical means of the computer classrooms, in other words, of the information technology classrooms and the lack of course references (N=45). The teacher candidates point out that such case causes negativities as below;

- The technical hardware and software being out of date and insufficient creates negativity in applications regarding the course (N=23),
- Because the references of the course are not updated (teacher's guidebook, student's study book, textbook, etc.), these are far from being sufficient (N=22),
- Because the number of computers are insufficient, a single computer can't be allocated for each student (N=19),
- The technical hardware and software being out of date and insufficient influences negatively the student's motivation (N=9),

As regarding the subject matter, a teacher candidate (K22) has reported his/her opinion as follows by saying,

> "*There are problems in some of the visuals in the textbooks, these could cover missing knowledge.*"

And, another teacher candidate (K31) identifies the current situation as follows in the IT class where he/she has made practice;

> "*The present software available is not up-to-date and these are older than those the students use in their homes. Such case could cause difficulty in perception of students.*"

As regarding this problem, the teacher candidates present suggested solutions as below;

- The school management should attribute the proper significance to the IT classes (N=13),
- The textbooks of IT courses should be written by the specialists of the field and these should be updated persistently (N=12),
- A unit should be established to provide support on technical hardware and software and in eliminating the deficiencies (N=11),
- The textbooks can be updated in online medium and presented so (N=11),
- The deficiencies in IT classes should be eliminated and activities towards practice should be increased (N=9),

The teacher candidates report that in case these suggestions are taken into consideration, the interest towards the IT course would increase and the IT teachers would do their jobs more productively.

2. Professional Problems Experienced by Information Technology (IT) Teachers and Suggested Solutions

According to the views of the IT teacher candidates, Professional Problems Experienced by Information Technology (IT) Teachers and Suggested Solutions are gathered together under five different themes. The professional problems experienced by IT Teachers and distribution of IT teacher candidates according to years they receive education are given in Table 6.

Table 6. Distribution of IT teacher candidates regarding professional problems experienced by IT Teachers

Problem;	Academic Year				Total	
	2011–2012		2012–2013			
	f	%	f	%	f	%
Task, power and responsibility of the IT teacher not being made clear enough	39	70.9	51	75.0	90	73.2
The difficulties in application of Formative teachers	33	60.0	33	48,5	66	53.7
Course hours that have to be filled in by the information technologies teacher not being able to be filled in and the problem of permanent staff	19	34.5	27	39,7	46	37.4
Courses that have to be taught by the IT teachers being taught by teachers of different branches	16	29.1	20	29,4	36	29.3
Executives, supervisors and experts trained from the field to supervise the IT and Formative teachers not being available	13	23.6	17	25,0	30	24.4

It can be seen from Table 6 that the teacher candidates have indicated in both academic years that the most crucial professional problem the IT teachers have experienced is task, power and responsibility of the IT teacher not being made clear enough. The data obtained show that the problems regarding "task, power and responsibility of the IT teacher not being made clear enough" and "Course hours that have to be filled in by the information technologies teacher not being able to be filled in and the problem of permanent staff" have increased in academic year 2012-2013 compared with previous year. And, it is seen that "The difficulties in application of Formative

teachers" have decreased with respect to previous year. Moreover, it has been detected that no change has occurred in the problems specified from both academic years and in the orders of priority of the same. The professional problems experienced by IT teachers determined by IT teachers exhibit parallelism with other researches made in the field (Eren. & Uluuysal. 2012; Demirli. Kerimgil. & Donmuş. 2012; Kurtoğlu. & Seferoğlu. 2012; Kurt. & Sular. 2011; Karal. & Timuçin. 2010; Kuvan. & Akgün. 2010; Topu. 2010; Kayak. & Orhan. 2009; Kabakçı. Akbulut. & Özoğul. 2009; Erdoğan. & Aslan. 2007; Okay. 2007; Deryakulu. & Olkun. 2006). The problems determined in this line have been detected as result of many researches, too, and it has been seen that such problems haven't been resolved until today. Within this context, the findings and interpretations obtained from the IT teacher candidates regarding professional problems experienced by IT teachers and suggested solutions have been detailed under the following headings.

2.1. Task, Power and Responsibility of the IT Teacher not being Made Clear Enough: Task definitions of IT teachers' power and responsibility not being clear occupies the first place in the professional problems the IT teacher candidates have observed (N=90). The teacher candidates point out that task, power and responsibility of the IT Teacher not being made clear enough causes negativities as below;

- The IT teachers not being able to know clearly their own tasks (N=34),
- Confusion of formativeness and teachership being experienced (N=28),
- Off-duty responsibilities being assigned to IT teachers by the school directorate and other teachers (N=25),
- Motivations of IT teachers being impacted negatively (N=15),
- Professional exhaustion being caused by that (N=12),
- Teacher quality being lost by IT teachers (N=7),

As regarding the subject matter, a teacher candidate (K20) has reported his/her view as follows;

> *"Task, power and responsibility of the IT teacher have to be made clear. Every teacher should become self-aware on this subject so that he/she can defend his/her rights and responsibilities against the administration or the other teachers."*

And, another teacher candidate (K32) expresses his/her opinion as follows;

> *"The school principal could request from the IT teacher to search from the internet and make the IT homework of his/her child. I wonder if the principal could ask the mathematics teacher to make the mathematics homework of his/her child?"*

As regarding this problem, the teacher candidates point out the following requirements;

- The confusion about the task, power and responsibility of IT teachers must be eliminated (N=62),
- The confusion in formativeness and teachership should be removed and a division should be made in terms of very clear limits (N=17),
- The school management and other teachers should be made to become self-aware on the tasks of IT teachers (N=11),
- The school management and other teachers should be prevented from assigning off-duty responsibilities to IT teachers (N=11),
- Compulsory assignments should be abolished (N=10),

The IT teacher candidates state that IT teachers would be able to conduct their own tasks more effectively when the job definitions of IT teachers' powers and responsibilities are made clear and they would attain Professional satisfaction by this way. Moreover, it is being emphasized that the requests of the executives and other teachers would also become clear within this frame.

2.2. The Problems in the Application of Formative Teacher: And, one of the professional problems the IT teacher candidates have observed is the problems in the application of formative teacher (N=66). The teacher candidates point out that the formativeness system causes negativities like below;

- Information Technologies formative teachers being perceived as technicians (N=44),
- Overwork load being assigned under name of formativeness (N=31),

- Being considered as technicians impacting negatively the place of IT teachers in the eyes of the other teachers (N=21),
- Formative teachers being selected from different branches and their field knowledge not being sufficient (N=21),
- IT teachers assuming formativeness task in more than one school (N=19),

As regarding the subject matter, a teacher candidate (K28) who received preparatory (English) education interprets the case as follows,

"You are graduated from CEIT after you've spent five years time and labour, taken in best way all pedagogic formation courses of teachership during all along the education period and acquired a skill to be able to apply the new instructional approaches in education and then, you are confronted with such a situation that it is quite far from a medium wherein you can apply all of such skills you've learned. All right then, what's the use of receiving such an education. If we knew it at the time, we would study a 2-year technical academy and we would do our technical service task much better. A process deviated from its objective is in front of the eyes."

As suggested solutions for this problem, the teacher candidates report the following;
- Teacher-formative concepts should be made very clear (N=41),
- Formative teachers' tasks should be specified completely and their personal rights should be regulated (N=33),
- Teachers to be assigned as formative teachers should be selected only from graduates of CEIT thus synergy should be ensured so. (N=23),
- Computer technicians should be employed in schools (N=16),

The IT teacher candidates report that powers and responsibilities would be made clear when the problems regarding formative teachers are solved. Furthermore, it is being emphasized that executives' and other teachers' way of looking to IT formative teachers would change, too.

2.3. Course Hours That Have to be Filled in by the Information Technologies Teacher Not Being Able to be Filled in and the Problem of Permanent Staff: And, one of the problems the IT teacher candidates have observed is the IT teachers not being able to fill in the course hours that they have to fill in and the problem experienced by them arisen because of this (N=46). The teacher candidates report that the IT teachers not being able to fill in the course hours causes negativities as follows;
- Performing duty in the schools they are located as in excess of permanent staff (N=32),
- They being obliged to go to more than one school (N=11),
- They being obliged to go to off-branch courses because they can't fill in the course hours (N=11),
- Motivations of IT teachers being impacted negatively (N=10),

As regarding the subject matter, a teacher candidate (K11) expresses his/her opinion as follows.

"In a course of one hour a week, in which student can we awaken love and respect and thus ensure the courses to be productive? Moreover, the teachers who can't fill in the course hours being in excess of permanent staff is driving me more and more to despair."

As suggested solutions on the subject matter, the teacher candidates propose the following;
- The course hours of IT teachers should be rearranged and the problem of permanent staff should be resolved (N=24),
- The number of courses towards information Technologies should be increased and these should be made compulsory at every level (N=17),
- In order to ensure in schools the education and technology integration within frame of FATİH Project, IT teachers can be employed in guidance counselor position (N=17),

- IT teachers can be employed in guidance counselor position for teachers and students towards the use of technology (N=13),

The IT teacher candidates point out that IT teachers' worries regarding their staffing pattern would decrease thus they would be able to make further contribution to the schools they are located in, when the weekly course hours of IT are increased and when the problem of permanent staff is solved.

2.4. Courses That Have to be Taught by the IT Teachers Being Taught by Teachers of Other Different Branches: The IT teacher candidates indicate that courses that have to be taught by the IT teachers being taught by teachers of different branches is another problem (N=36). The teacher candidates indicate that such case causes negativities as follows;
- IT courses being excluded from courses of expertise field (N=21),
- The course being considered as a useless course given for other teachers to fill-in course hours or to take extra hours (N=16),

A teacher candidate (K4) states his/her opinion on the subject matter as follows,
"Particularly in metropolitan cities, the IT staff pattern being shown as full and teachers of other different branches or paid teachers attending IT courses is quite a serious problem for us. For instance, in Çankaya district, the staff pattern is shown as full and the IT course is being continued to be taught since 8 years by the Technology Design teacher."
And, another teacher candidate (K1), interpretes the case as follows,
"We possess the proper knowledge to teach courses such as, media literacy and project preparation. In the Bachelor of Science Program, we've taken the courses Project Development and Management I, Project Development and Management II and Media Psychology. Courses covering instructional program in parallel with such courses should be taught by IT teachers."

Suggested solutions on this problem are presented by the teacher candidates as follows;
- Teachers should teach the courses in the field they are assigned to (N=29),
- Other courses having instructional programs in parallel with the courses given in CEIT departments (for example, media literacy, project preparation, etc.) should be taught by IT teachers (N=12),

The IT teacher candidates indicate that IT courses are courses requiring expertise and thus such courses should be taught by experts. Furthermore, the teacher candidates emphasize that education towards IT could be given only by teachers graduated from CEIT.

2.5. Executives, Supervisors and Experts Trained From the Field to Supervise the IT and Formative Teachers Not Being Available: And, another problem the IT teacher candidates have observed is executives, supervisors and experts trained from the field to supervise the IT and Formative teachers not being available (N=30). The teacher candidates indicate that such problem causes negativities as below;
- IT teachers not being able to be inspected properly (N=15),
- Provincial IT coordinators and trainers responsible of formative teachers across the province being assigned from branches not related at all with the field expertise (classroom teacher, physical training teacher, etc.) (N=12),
- Means not being provided for IT teachers to develop themselves (N=12),
- Inspections being remained shallow (N=7),

One of the teacher candidates (K12) expresses his/her opinions on the subject matter as follows;
"Because the course is new, no inspectors trained in this field are available. In such a case, how much is the inspector who comes for inspection a computer literate and how much does he know about the content of the course? How good does he know the

developments regarding this field? Thse are problematic. In such a case, the inspector would not be able to make adequate guidance. He wouldn't be able to see the teacher deficiencies and he wouldn't be able to train himself in the field"

Suggested solutions on the problem are being presented as follows by the teacher candidates;
- Field expert inspectors should be trained able to inspect the information Technologies teachers (N=11),
- Means should be provided for IT teachers to develop themselves and in-service courses should be organized in line with this (N=10),
- Provincial IT coordinators and trainers responsible of formative teachers across the province should be selected from among persons related to field expertise (N=10),
- The inspections shouldn't remain shallow (N=7),

The IT teacher candidates indicate that executives, inspectors and experts trained from the field to supervise IT and formative teachers should be trained. The teacher candidates emphasize that the operation would be more productive by this way.

Conclusions and Suggestions

Conclusions

As in parallel with development of technology, having the students to acquire the habit to use IT accurately and effectively bears great significance. Within this context, the students are in need of guidance in order they can use IT in the right way. It is being thought that the guidance towards using IT can be conducted for students successfully by IT teachers whose field of expertise is on this subject and such process would go on expanding in parallel with IT development. It is being seen that the IT teachers receiving education in quality of guide towards the use of IT are facing today many problems, these being, professional and towards IT courses and that such problems continue increasing in time.

As result of the study where it is aimed to determine the problems of IT teachers and their views on the suggested solutions to such problems, it has been determined that the IT teacher candidates have dealt with the problems the IT teachers experience, in two sub dimensions, these being, the problems regarding the courses the IT teachers are attending and problems regarding the professional lives of the IT course teachers and they've presented suggested solutions in line with this. At the end of the research, the problems experienced by IT teachers towards IT courses have been specified respectively as follows: the courses being optional; the course being grade-free; the weekly course hours being very few; the significance of IT not being comprehended very well by the executives, teachers, parents and students; the inadequacy of physical means of IT classes and the references of the course. In the study designed in longitudinal survey model, it has been seen that the problems regarding "the fewness of the course hours allocated to IT course" and "The significance of IT not being comprehended very well by the executives, teachers, parents and students" have increased in academic year 2012-2013 compared with previous year. The problems determined in this line have been detected as result of many researches, too, and it has been seen that such problems haven't been resolved until today.

For the solution of the problems experienced regarding IT courses, the IT teacher candidates indicate that firstly, IT courses should be spread over all instructional levels, course hours should be increased, the courses should be included in compulsory course scope and they should be evaluated by a grade. Furthermore, it has been emphasized by the teacher candidates that the executives, teachers, parents and students should be made to comprehend the significance of IT and the physical means of IT classes should be improved, the inadequacy in the course references should be removed and these should be updated. Within this context and within frame of FATİH Project, that guidance task on significance of IT subject should be given to IT teachers takes place among the suggested solutions, too.

Professional problems experienced by IT teachers have been specified as follows as result of the research: task, power and responsibility of IT teachers not being made clear; difficulties in application of formative teacher; course hours that have to be filled in by IT teachers not being able to be filled-in and the problem of permanent staff; courses that have to be taught by IT teachers being taught by teachers of different branches; executives, inspectors and experts trained from a field to supervise the IT and formative teachers not being available. It has been concluded in the study that the problems regarding "the task, power and responsibility of IT teachers not being made clear" and "course hours that have to be filled in by information technologies teachers not being able to be filled-in and the problem of permanent staff" have increased in academic year 2012-2013 compared with previous year and the problem of "difficulties in application of formative teachers" has decreased in same academic year compared with previous year. Moreover, according to the teacher candidates, it has been seen that no change has taken place in the problems determined in both academic years where the research has been made and in their orders of priority, too. The problems determined in this line have been detected as result of many researches, too, and it has been seen that such problems haven't been resolved until today. It is seen in the studies carried out that pareticularly the quality of IT teachers regarding teaching profession is not considered because job definitions of IT teachers haven't been made and so they are considered as technical staff mostly and such fact causes a big problem to arise. Such case shows, in the studies carried out, too, that there is a difference between the education received by IT teacher candidates and what is expected from them when they become a teacher.

In solution of the professional problems experienced by IT teachers the IT teacher candidates point out that firstly the job definitions of IT teachers should be specified clearly and the confusion in the power and responsibility of formative and IT teachers should be eliminated. On the other hand, that the IT courses and other courses with an instructional program parallel with the courses given in CEIT departments should be taught by IT teachers, is one of the aspects emphasized frequently by the teacher candidates. Furthermore, the teacher candidates indicate that the problem of permanent staff could be solved by increasing the IT course hours and by employing in position of guidance in order to ensure in schools integration of technology in education within scope of FATİH Project. And, another result attained in the research is regarding the roles of IT teachers in the FATİH Project. The teacher candidates believe that FATİH Project could be a chance in determining exactly the job definitions of IT teachers.

It is seen that such problems experienced by IT teachers impact negatively their motivations and cause professional exhaustion. The IT teacher candidates have indicated that in case the problems regarding IT courses and IT teachers are eliminated; interest in the course would increase, motivations of students and teachers would increase, IT teachers could conduct their works more healthily and the way of looking at IT teachers would change in positive way.

Suggestions

The significance of IT teachers whose basic task is to make students to acquire the skills of computer literacy and to perform guidance in the use of technology in education can't be denied on the subject of the use of technology in education. Within this context, specifying the problems of IT teachers and developing suggested solutions in line with this is an important element. And, as based on the outcomes of the research implemented for such purpose, the suggested solutions which could be set forth are as follows;

1. The job definitions of IT teachers should be reorganized and regulations should be made regarding their personal rights.

2. It should be ensured that IT courses be compulsory and the course be evaluated by a grade.

3. It should be ensured that IT course and courses possessing instructional program in parallel with the courses given in CEIT departments (for example, media literacy, project preparation, etc.) be taught by IT teachers.

4. Temporary assignments under titles such as, IT coordinatorship, IT trainer formativeness, IT

Guidance teachership or formative should be stopped or a standard should be brought. Within this context, persons who are field experts should be assigned to such duties and their job definitions should be made very clear.

5. IT teachers should be made to acquire the quality of guidance counsellorship to train the students and other branch teachers on IT subject, to coordinate the new practices and projects within scope of FATİH Project.

6. Means should be provided for IT teachers to develop themselves and in-service courses should be organized in line with this.

7. A unit should be established to help IT teachers in their technical difficulties and wherein they can have access to up-to-date software and course instruments.

8. The programs of the CEIT departments which train the IT teachers should be reorganized in quality to meet the expectations of the Ministry of National Education.

9. Inspectors trained from a field which can supervise the IT teachers should be trained.

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