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Investigation of the Problems and Professional Future Concerns of CEIT Students' in Different Curriculum

Sercan ÖZEN[a*], S. Güzin MAZMAN AKAR [b],Mehmet Barış HORZUM[c]

[a]MEB, Vala Gedik Anadolu Lisesi, Uşak/Türkiye
[b]Uşak Üniversitesi, Eğitim Fakültesi, Uşak/Türkiye
[c]Sakarya Üniversitesi, Eğitim Fakültesi, Sakarya/Türkiye

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Abstract

This study aimed to compare the Sakarya University which follows a new curriculum and a public university which follows the current curriculum in terms of problems experienced by the students of Computer Education and Instructional Technologies (CEIT) and their professional future concerns alongside to take students' opinions on the CEIT program. Study group was consisted of 198 CEIT students adopted a new curriculum in Sakarya University and 116 CEIT students adopted a current curriculum in a public university excluding first grades. Cross-sectional survey model was used in the study. Beside quantitative data, students' opinion were collected with open ended questions qualitatively in the questionnaire. According to quantitative data results, the problems students encounter and the future concerns of CEIT students in current curriculum was found to be higher than the CEIT students' in new curriculum. In addition, qualitative findings have been collected under three headings as student ideas which can be potential answers to sub-problems, potential problems in curriculum and in its application, professional concern about future and the shift in educational program. Based on these findings, equilibrium distribution of field courses and other courses, increasing the elective courses, sustainability of the up to dateness of the curriculum by the in keeping with technological development, increasing the quality of the instructors and the teaching methods can be suggested.

Farklı BÖTE Öğretim Programlarında Öğrenim Gören Öğrencilerin Sorunları ve Mesleki Kaygılarının İncelenmesi

Makale Bilgisi

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Anahtar Kelimeler:
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yaşanan sorunlar,

Öz

Bu çalışmada BÖTE öğretim programında yeni bir program kullanan Sakarya Üniversitesi ile mevcut sistemdeki öğretim programını uygulayan bir devlet üniversitesindeki öğrenci görüşlerinin lisansta karşılaştıkları sorunlar ve geleceğe yönelik mesleki kaygıları bakımından karşılaştırılmasının yanında öğretim programına yönelik öğrenci görüşlerinin alınması amaçlanmıştır. Çalışma grubunu 2014-2015 eğitim-öğretim yılında Sakarya Üniversitesi birinci sınıf haricinde 198 bilişim teknolojileri öğretmen adayı ile mevcut sistemdeki öğretim programını izleyen bir devlet üniversitesinde birinci sınıf haricinde öğrenim gören 116 bilişim teknolojileri öğretmen adayından oluşturmaktadır. Çalışmada genel tarama modellerinden kesitsel tarama modeli kullanılmıştır. Araştırmada nicel verilerin yanı sıra öğrencilerin görüşleri ankette yer alan açık uçlu sorular yoluyla nitel olarak desteklenmeye çalışılmıştır. Elde edilen nicel bulgulara göre mevcut BÖTE öğretim programındaki öğrencilerin, yeni

* **Author:**sozen33@gmail.com

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BÖTE öğretim programındakilere göre lisans döneminde karşılaştıkları olası sorunlar ve geleceğe yönelik mesleki kaygılarının daha fazla olduğu bulunmuştur. Bunun yanı sıra nitel bulgularda ise alt problemlere yanıt olabilecek öğrenci görüşleri; öğretim programındaki ve uygulamasındaki olası sorunlar, geleceğe yönelik mesleki kaygılar, öğretim programındaki değişiklik olmak üzere üç tema altında toplanmıştır. Bulgulara dayanarak araştırma sonucunda alan ve alan dışı derslerin öğretim programında dengeli bir dağılımının olması ve seçmeli derslerin bu anlamda artırılması, öğretim programındaki içeriğin değişen teknolojiye uyum sağlayarak güncelliğini koruması, öğretim elemanlarının ve öğretim yöntem tekniklerinin niteliğinin artırılması anlamında öneriler getirilebilir.

Introduction

Along with extensive usage area of information technology in everyday life, the increasing effect of the technology especially in the field of education reached a level that cannot be ignored, therefore researches and developments about effective utilization of technology in education have formed the objective of many studies around the world (Pamuk, Çakır, Ergün, Yılmaz and Ayaş, 2013). It can be said that being the main practitioners, the main responsibility of using technological tools in education belongs to the teachers who play a significant role in this process (Akıncı, Kurtoğlu, Seferoğlu, 2012). This fact revealed the importance of teacher's competences, which led to the development of National Educational Technology Standards for Teachers [NETS-T])(NETS, 2006).While creating the standards, all stages of the education process have been considered, as a result a wide range of standards such as professional development, measurement and evaluation have been shown up (Çoklar and Odabaşı, 2009). The role of Computer Education and Instructional Technologies (CEIT) on rising individuals equipped with these standards cannot be denied. So that CEIT departments have been established within the body of Education faculties (Dursun and Çuhadar, 2009). Kurtoğlu and Seferoğlu (2012) have stated that the main objective of the establishment of CEIT department is training information technology teachers who can instruct in primary and secondary education; who will help efficient use of information technologies in education; who can develop and use teaching methods and techniques; and who possess required professional knowledge and skills. Along with this objective, it is expected that those who are trained in this discipline lead other teachers on the utilization of technology in teaching process (Akkoyunlu, Orhan and Umay, 2005).

The first graduates of CEIT department did not have any difficulties on being assigned to public schools. Especially between 2003-2006, CEIT was one of the discipline where the most number of teachers have been assigned, (YÖK, 2007). However, the reduction on the course hours of information technology course given in the schools and being positioned as a selective course caused decrease on the number of assignments made from this department. Indeed, conducted studies revealed that CEIT pre-service teachers don't want to be tied down with the teaching profession, they also expressed their wish that the courses in the teaching program to be customized towards private sector (Sanalan et al., 2010).

CEIT training program has first been created in 1998, within the framework of Council of Higher Education's program of restructuring Education faculties. The competences expected from pre-service teachers have been changed over time parallel to the changes of the circumstances and this situation mandated updates in the training programs (Kurtoğlu Erden, 2014), and accordingly CEIT curriculum have been updated in 2006 (YOK, 2007). In this regard, computer and hardware courses, which were the issues perceived as shortcomings by the students, were added to the new curriculum and the intensity of Science courses was reduced, which has been quite welcomed; on the other hand, the credits of some field courses were kept as they were, which showed that the modifications made on the curriculum were insufficient and further updates were required for the education programs (Altun and Ateş, 2008; Sanalan et al., 2010; Demirli and Kerimgil, 2009). Therefore, with Bologna process, which aimed to create a common quality standard across Europe, Sakarya University has made some

modifications by updating its education program. Sakarya University introduced a curriculum that is different than existing CEIT curriculum (SAU, 2015a).

CEIT Curriculums

The review of CEIT curriculums revealed that all universities, except Sakarya University, use the curriculum updated by YOK in 2006. CEIT curriculums adopted by Sakarya University and the ones used in the existing system are displayed in Table 1 (YOK, 2006; SAU, 2015b).

Table 1.
CEIT curriculum adopted by Sakarya University and the ones used existing system

Course Types	**Courses**	
	Existing System	**Sakarya University**
Culture Courses	○ Mathematics I-II ○ Turkish I-II ○ Foreign Language I-II ○ Ataturk's Principles and Reforms I-II ○ Physics I-II ○ History of Science ○ Community Service Practices ○ Scientific Research Methods	○ English ○ Turkish ○ Ataturk's Principles and Reforms ○ Community Service Practices
Field Courses	○ Information Technology in Education I-II ○ Programming Languages I-II ○ Education and Technology ○ Computer Hardware ○ Instructional Design ○ Graphic and Animation in Education ○ Operating Systems and Applications ○ Internet Based Programming ○ Distance Learning Principles ○ Multimedia Design and Production ○ Computer Networks and Communication ○ Database Management Systems ○ Project Development and Management - I-II ○ Web Design	○ Information Technology in Education ○ Mathematics and Logic in Computer Programming ○ New Literacy ○ Communication, Computer Assisted Instruction ○ Visual Design ○ History of Technology and Science ○ Material Design and Use in Education ○ Introduction to Algorithm and Programming ○ Object Oriented Programming, Instructional Design ○ Computer Networks and Communication ○ Graphic and Animation in Education
Selective Courses	○ Four Selective Courses On Field Courses ○ Two Selective Courses On Culture Courses ○ Two Selective Courses On Educational Sciences	○ Eight Selective Courses, Three University Common Courses
Educational Sciences	○ Introduction To Teaching Profession	○ Introduction To Teaching Profession

Courses	○ Educational Psychology ○ Teaching Principles and Methods ○ Assessment and Evaluation ○ Classroom Management ○ Special Teaching Methods I-II ○ Turkish Education System And School Management ○ School Experience ○ Counseling ○ Teaching Practice	○ Teaching Principles and Methods ○ Educational Psychology ○ Assessment and Evaluation ○ Classroom Management ○ Special Teaching Methods ○ School Experience ○ Counseling ○ Teaching Practice

The comparison of the CEIT curriculum adopted by Sakarya University (see *http://ebs.sakarya.edu.tr/?upage=fak&page=bol&f=117&b=917&ch=1&yil=2015&lang=tr*) with the ones used in the existing system revealed that general knowledge courses are fewer, selective courses with field courses are more dominant, whereas there are not much differences on educational courses. Regarding covered culture courses, courses such as English, Turkish, Ataturk's Principles and Reforms are common in both CEIT curriculums. On the other hand, courses such as physics, mathematics, which are covered in existing CEIT curriculums are not covered in SAU CEIT curriculum. Regarding field courses, different courses such as communication, new literacies, computer assisted instruction, visual design, technology and history of science, computerized statistics were added to the curriculum of SAU. In addition, mathematics course that is instructed as a culture course within existing curriculum is given in SAU under field course category by combining with another field course, naming as mathematics and logic in computer programming.

Professional Concerns

In today's world, many communities attempt to obtain success through competition between individuals. With this competition, we learn from the childhood that we have to work hard in this challenging world to gain the respect of the others and to become a high quality professional in the fields that we choose. In the face of these conditions, we begin to believe that the main source of success, happiness and self-esteem is growing professional reputation (Kartashova, 2015). This particularly causes university students to worry about catching professional reputation. Indeed, the studies addressing the identification of the problems that university students encounter revealed that the first three categories mentioned as the most problematic areas are making a career, uncertainty about what to do after graduation and professional concerns (Doğan and Çoban, 2009; Gizir, 2005; Kaya and Büyükkasap, 2005). In this context, the studies featuring the concerns of the teachers, who have a significant role in education area, provide important data for the training of more qualified pre-service teachers (Cabi and Yalçınalp, 2013).

In the study of Altun and Ateş (2008),which has been conducted to determine the problems that students experienced during their undergraduate education and their professional concerns for the future, the biggest problem of the undergraduate period was seen as the curriculum. Demirli and Kerimgil (2009) stated that undergraduate education program should be more flexible and updatable, in addition more weight should be assigned to field courses. In another research, Kurtoğlu Erden (2014)indicated the need of working for improving the technological and technical competencies of the students in undergraduate programs, as well as the content update of the courses. Other researches also supported this fact and emphasized the necessity of updating education programs (Sanaalan et al., 2010; Eren and Uluuysal, 2012). The review of the literature showed that the studies addressing directly to the evaluation of CEIT curriculums are limited and more research are needed (Kurtoğlu Erden, 2014).This study aimed to compare Sakarya University, which adopted a new CEIT curriculum, and a public university, which follows the existing curriculum, in terms of students' opinions about the problems experienced in undergraduate education and their professional future concerns, along with

taking students' opinions on the new CEIT curriculum. For this purpose, the following questions were addressed;

(i).Do the potential problems of study group differ in terms of university?

(ii).Do the professional concerns of study group for the future differ in terms of university?

(iii).What are the opinions of study group about the new CEIT curriculum?

Methodology

Cross-sectional survey model, where the data is collected one point in time (Fraenkel and Wallen, 2006), was used in the study. In addition to the quantitative data, students' opinions were qualitatively collected with open ended questions added to the questionnaire. Qualitative data was only used to explain the quantitative data in a more detailed way during comparison.

Study Group

Criteria sampling was used in the selection of the students. The criterion used was "being studying in CEIT education program of a domestic university that either follows an existing CEIT curriculum, or adopted a new one". Within the framework of this criterion, the study group consisted of 198 CEIT students from Sakarya University, which adopted a new curriculum, and 116 CEIT students from a public university, which follow the existing curriculum (excluding first grades). University and grade cross-tables of the study group according to gender is given in Table 2.

Table 2.
Characteristics of the study group

		Female	Male	Percent	Total
University	SAÜ CEIT	96	102	%63	198
	OU CEIT	55	61	%36.9	116
Grade	2nd grade	30	34	%20.3	64
	3nd grade	32	39	%22.6	71
	4nc grade	89	90	%57	179
Percent		% 48.1	% 51.9		314
Total		151	163		

Data Collection Tool

"The Problems and Future Concerns of CEIT Students" questionnaire developed by Altun and Ateş (2008) was used as the data collection tool of the research after granting required permissions. The questionnaire that was based on the opinions of 3 experts from CEIT field, consists of a total of 72 statements grouped under three sections, namely personnel information-6 statements; problems experienced in undergraduate education-32 statements; and future concerns-34 statements. Along with this questionnaire, qualitative data was collected from information technology pre-service teachers through two open-ended questions, which were not present in the original questionnaire, after consulting three experts from CIET field. Moreover, a third question was added to the questionnaire while applying the questionnaire to the students of Sakarya University, which adopted a new system, hence students were asked to answer three open-ended questions. The reason of not asking this third question to the students of other CEIT program is getting students' opinions about CEIT curriculum of Sakarya University, which adopted a new system. Two faculty members from CEIT department and two faculty members, who is enrolled in the doctoral program of Curriculum and Instruction, were consulted for the face validity and content validity of the questionnaire. As a result of the reliability analysis conducted by the researcher, Cronbach Alpha reliability coefficient was found to be 0.930 for the 32 statements of the second part, which measures the problems experienced in the undergraduate program; it was found to be 0.937 for the 34 statements of the third part, which measures future

concerns; whereas the Cronbach Alpha coefficient of the whole questionnaire, calculated for a total of 66 statements was found to be 0.95. Accordingly, it can be said that the reliability of the questionnaire is quite high (Büyüköztürk, 2014).

Data Analysis

In the research, cross tabulation is used to compare proportion of gender across university and grade. Independent sample t-test was performed to find out if there are significant differences between the groups for the first and second research questions. Descriptive analysis was conducted for the analysis of qualitative data, where pre-defined themes are used in the analyses and the findings are arranged according to them, cause-effect relationships are evaluated, summarized and interpreted (Yıldırım and Şimşek, 2008).Within this framework, three themes were identified for student opinion that may be answer the research questions:

(i). Potential problems related to the curriculum and its implementation

(ii). Professional concerns for the future

(iii). Modification in the curriculum

The data sets collected from two different universities were separately coded under these themes. But, the third theme was only used for the analysis of the data collected from SAU CEIT students. Therefore, SAU CEIT qualitative data set was coded according to three themes, whereas the data from the other university was coded according to two themes.

Before starting the analysis of qualitative data according to these themes, qualitative data of the survey was transferred into digital format and Sakarya University students' quotations were coded as SAU1, SAU2, etc., whereas the quotations of the other university students were coded as OU1, OU2. 42-page qualitative data set of the research was continuously read twice and two times with interruption and coded afterwards. These codes were grouped according to pre-defined themes and quotations that will be used in the presentation of the findings were identified. This process was repeated twice by the researcher, with a 25-day interval.

Findings

Findings obtained from qualitative and quantitative data set were presented separately according to themes.

Quantitative Findings

Independent sample t-test was performed for the analysis of quantitative data regarding first and second research questions. Skewness and kurtosis coefficients were checked to validate normal distribution of the data; both professional concerns' and undergraduate period problems' scores were found to be within ±3 interval, thus the assumption of normal distribution was confirmed(Kline, 2003). Levene test was performed to check the homogeneity of the groups' variances and the variances were found to be homogeneous ($p>.05$).

In order to see if the problems encountered by the study group during the undergraduate education differentiate according to university, independent sample t-test was performed on the total scores obtained from the second part of the questionnaire. The results of the independent t-test revealed that the distribution of the potential problems encountered by the study group during the undergraduate education are significantly different according to universities ($t(312)=-6.66$; $p<.001$).Therefore, it can be said that the problems that CEIT students of other universities experience(χ=112,5 sd=22,9)are higher than the ones of SAU CEIT students (χ=92.8 sd=26,4).

Regarding the second research question, independent sample t-test was conducted on the total scores obtained from the third part of the questionnaire in order to see if students' professional concerns for the future differentiate according to university. The results of the analysis revealed that the

means of professional concerns for the future are significantly different (t(312)=-4.89; p<.001). Accordingly, it can be said that the future concerns that CEIT students of other universities feel($\chi = 107.7$ sd $= 30{,}5$)are higher than the ones of SAU CEIT students ($\chi = 89.5$ sd $= 31{,}6$).

Qualitative Findings

The findings belonging to the qualitative data collected through open-ended questions are presented under three pre-defined themes. Coding of the data were done separately for the qualitative data sets collected from two different universities. 172 students over 198 have answered the open-ended questions of SAU CEIT questionnaire, and they were coded under three themes. 95 students over 116 have answered the open-ended questions of OU CEIT questionnaire. The first two themes given below consist of the codes obtained from both universities; whereas the third theme includes only the one obtained from the question asked to SAU CEIT students.

Potential problems related to the curriculum and its implementation

Table 3 shows potential problems related to the curriculum and its implementation. The data collected from SAU CEIT students leaded to 10 problem themes, whereas the data collected from OU CEIT students resulted with 11 themes.

Tablo 3.

Problems related to the curriculum and its implementation and their frequencies

Codes	SAU CEIT		OU CEIT	
	f	%	f	%
the use of monotonous teaching method and technique	47	23.7	19	16.3
Unbalanced course distribution	42	21.2	32	27.5
The content being *at the basic level*	33	16.6	18	15.5
the inadequacy of physical-technological infrastructure	30	15.5	8	6.8
the inadequacy of faculty members	27	13.6	22	18.9
failing to maintain the up-to-datedness of course content	18	9	6	5.1
students' workload	15	7.5	6	5.1
ineffective internship practices	8	4	3	2.5
mandating selective course	3	1	11	9.4
the field course hours	3	1	6	5.1
unwilling students	-	-	2	1

47 SAU CEIT students and 19 OU CEIT students stated that there are problems in terms of teaching method and techniques due to following a superficial, teacher-centered instruction that is based on memorization, especially in the field courses; and practice-based courses being mostly taught in a theoretical way. Some of the students' statements about *the use of monotonous teaching method and technique* are as below:

> *The courses related to the field should be practice-based, not verbal. The instruction of the course doesn't fit the course, there is a lack of practice [OU234].*
>
> *Dividing the class into groups and instructing the course by reading from slides, makes the course quite boring, as well as reduces learning rate. Different materials should be used in order to improve the quality of the instruction [OU262].*

42 SAU CEIT students believe that they are incompetent in field courses, thus they want more intensified field courses by reducing educational courses; and 19 OU CEIT students stated that they want

out-of-the field courses to be reduced and field courses to get more intense, therefore both parts have expressed that there are problems in terms of course distribution. Some of the statements about *unbalanced course distribution* are as below:

> *I would like to have more software teaching practices instead of the courses that won't help us in our teacher life, such as physics, history [OU266].*
>
> *The intensity should be distributed evenly by decreasing database courses and increasing hardware courses [SAU79].*

Regarding the problems related to the content of the education, 33 SAU CEIT students expressed that the content should be arranged according to the needs of the status of the school and private sector, the content and details of the field courses should be improved; 18 SAU CEIT students stated that the courses are repetitive and insufficient, they contain unnecessary information that won't be used while performing the profession. Some of the students' statements about *the content being at the basic level* are as below:

> *It may be better to get specialized in at least one topic at the graduation by extending the content of field courses and supporting them with selective courses [SAU146].*
>
> *Our department gives more than one field course, but none of them are given in the degree of specialization[OU258].*

30 SAU CEIT students and 8 SAU CEIT students mentioned the inadequacies of the physical and technological infrastructure due to the insufficiency of physical environments such as classroom, laboratory, and the shortcoming of current technological materials and programs. Some of the students' statements about *the inadequacy of physical-technological infrastructure* are as below:

> *Inappropriate classroom environment, excessive class sizes, lack sufficient materials, and failure of the materials [SAU31].*
>
> *The inadequacy on the infrastructure of the classrooms [OU242]; The inadequacy of the equipment [OU223].*

Students have mentioned the inadequacy of the faculty members as well; 27 SAU CEIT students stated that faculty members are academically insufficient in field courses, they have lack of communication with students, and they are understaffed;22 OU CEIT students mentioned the insufficiency of the faculty members from other disciplines and the lack of qualities in terms of the instruction methods and techniques. Some of the students' statements about *the inadequacy of faculty members* are as below:

> *The lack of academically qualified faculty members is one of our main problems. I want to have instructors who open our horizons, who guide us [SAU181].*
>
> *Faculty members who do not possess teacher qualities failed to meet the level of the students, from first grade to forth [OU259].*

18 SAU CEIT and 6 OU CEIT students have pointed the problems arising from *failing to maintain the up-to-datedness of course content*, mentioning that the content and the material used should fit the modern technology and should be up-to-date. Some students' statements on this issue are given below:

> *They should teach the course using computer technologies. Above all, they rise a teacher generation who don't know how to use interactive whiteboard. I would like to have courses aiming to keep up-to-date with the developing technology[SAU151].*
>
> *Programming courses should focus on currently used technologies, such as object oriented programming, C#, Java, Oracle, SQL Server [OU288].*

15 SAU CEIT and 6 OU CEIT students mentioned the heavy workload of the students due to the nature of the homework and pushing students too hard, but not assigning importance to proper follow-up. The statements about *students' workload* are given below:

> *There is too much workload, regular homework should be replaced with learning-based homework; especially the homework given in selective courses, formed by the ordinary instruction of the course is unnecessary; the workload that diminishes teacher's workload but doesn't have any return to the student should be avoided[SAU103].*

> *The projects that we perform hang in the air, a chance to practice should be given. The applications produced by the students could be pooled into a website, the ones that can be used by EBA (Educational Computing Network) could be selected and awarded [OU261].*

Students expressed their problems related to internship applications; 8 SAU CEIT students stated that the internship were done in the schools without an open staff cadre and these internships were inadequate, educational science courses were not practice-oriented; 3 OU CEIT students indicated the need of increasing internship duration and practices. Students' statements about *ineffective internship practices* are as below:

> *I prefer school practice courses to be given every year, not only at senior year, it may be better to increase the number of courses every year, gradually. Because the practice is always different than the topics that we see in theory [SAU176].*

> *Internship should emphasize practice instead of writing plans. There should be more practice than theory [OU237].*

Regarding the problems about selective courses, 3 SAU CEIT students suffer from selective courses being treated as compulsory, whereas 11 OU CEIT students believe that field, private sector and teaching profession-oriented selective courses should be more in number. Some statements about *mandating selective course* are as below:

> *Eliminating compulsory courses, letting the students select the courses according to their area of interests would be excellent. Of course, there will be compulsory educational courses, since this is an education faculty, but everybody cannot be database expert, cannot make designs, etc. [SAU145].*

> *Selective courses should not be mandatory; one should take the courses according to his/her area of interest. Other courses are seen as a loss of time, which causes a decrease in the productivity and motivation [OU249].*

Students mentioned course hours as well; 3 SAU CEIT students pointed that field courses should not be given every year, 6 OU CEIT students indicated that the duration of out-of-the field courses should be less. Students' statements about *the field course hours* are as below:

> *The hours of the courses that are not directly related to the courses may be less [SAU152]. Programming and graphic design courses should be taken every year, development opportunities allowing to go further than basic level should be offered [SAU33].*

> *I wish programming courses to be given in two semesters, because only theoretical part could be given in one semester, no time left for practice [OU240].*

Finally, 2 students of OU CEIT stated that there is a group of students who have not chosen this department willingly, they just came because their exam score was enough, which posed problems. The statements about *unwilling students* are as below:

> *The main problem is that the people who chose this department are not willing enough. The students who join this department should like computers, innovation, should adapt technology, along with having teaching potential, they should say "I can be successful" in this sacred*

profession. Our friends who come to this department just to get enrolled to a university reflect their reluctance to really willing ones, which is a real problem [OU231].

Professional Concerns for the Future

Regarding professional concerns for the future, 7 concern themes were reached from the data collected from SAU CEIT students; 6 concern themes were reached from the data collected from OU CEIT students

Table 4.
Professional Concerns for the Future and their frequencies

Codes	SAU CEIT		DUCEIT	
	f	%	f	%
assignment anxiety	67	33.8	32	27.5
discredit	25	12.6	16	13.7
ambiguous job definition	7	3.5	4	3.4
graduates are not sufficiently qualified	6	3	5	4.3
lack of employment opportunity	5	2.5	8	6.8
the uncertainty about the future of the department	2	1	3	2.5
the lack of technological activities.	3	1.5	-	-

As seen in Table 4. 67 SAU CEIT students and 32 OU CEIT students stated that they have *assignment anxiety* due to the reasons such as the necessity of achieving a high score from KPSS (Public Personnel Selection Examination), too many students being enrolled to the department, and the cadre allocated to the assignment being too low. In addition, 25 SAU CEIT students and 16 OU CEIT students stated that the significance of the department is not recognized or discredited due to the reasons such as thinking wrong about the discipline, perceiving it as an unimportant course and not requesting CEIT teachers even though they are needed, everybody believing that they are expert in computer, and not being able to transfer the acquired knowledge properly. Some of the students' statements about *discredit* are as below:

CEIT department is not common and sufficiently known, it is believed that the graduates of this department are not needed in the schools [SAU46].

Not being able to transfer the use of technology effectively to the community in the technology age and consequently not getting the deserved credit [SAU112].

7 SAU CEIT students mentioned that graduates of the department are particularly seen as technical element, because they have knowledge in many areas, the job definition of the department is not properly set, whereas 4 OU CEIT students have stated that the department has an *ambiguous job definition* due to private sector-teaching discrepancy.

Being seen as technicians, handling fatigue duties outside of the teaching profession [SAU51].

6 SAU CEIT and 5 OU CEIT students stated that the *graduates are not sufficiently qualified* because the provided knowledge is too basic and spread across all areas, therefore students cannot get specialized on any subject. In addition, 5 SAU CEIT students mentioned that in the schools, teachers from various disciplines are also assigned as information technology teacher and it is quite difficult to get a job in the private sector beside teaching profession; 8 OU CEIT students pointed *lack of employment opportunity* problems, also adding lack of assignments to vocational high schools and getting low salaries at the employed positions.

2 SAU CEIT and 3 OU CEIT students have addressed *the uncertainty about the future of the department,* mentioning that the future is uncertain regarding the appointment cadres and the

continuity of the department. Finally, 3 SAU CEIT students pointed that the activities such as modern technology-oriented excursions, seminars are lacking within the department and expressed *the lack of technological activities*.

The modification in the curriculum

The modification in the curriculum part covers the answers of the open-ended question that was solely asked to SAU CEIT students. In this regard, the opinions of SAU CEIT students about the new curriculum are outlined in Table 5.

Table 5.

The opinions of SAU CEIT students about the modification in the curriculum

Sub-themes	Codes	f	Total
Negative	insufficient teaching methods	29	110
	lack of uniformity across curriculums	25	
	having field exam anxiety	16	
	encountering problems in internal transfer	6	
	not being up-to-date	4	
	having a narrow teaching content	4	
	giving the feeling of being a test-subject.	2	
Positive	having less out-of-field courses	17	55
	less heavy workload	8	
	getting improvements in education	8	
	supporting personal development	7	
	addressing to the department	5	
Neutral	No idea	11	22
	No difference	11	

As can be understood from Table 5, this theme was divided into three sub-themes; neutral (22 students), negative (110 students) and positive (55 students) thinkers. Accordingly, 22 SAU CEIT students were defined as *neutral* because they have either not realized the difference due to the modification of the curriculum or have not heard about it. On the other hand, 110 students have stated negative opinions such as *insufficient teaching methods, lack of uniformity across curriculums, having field exam anxiety, encountering problems in internal transfer, not being up-to-date, having a narrow teaching content* and *giving the feeling of being a test-subject*. Some of the negative students' comments are as below:

> *It is better in other universities. At least they don't make as much homework and presentation as we do, some space should be provided to the students who preparefor KPSS, they should not be pushed so hard with homework and presentations [SAU73].*
>
> *I think having a different curriculum than other universities pose problems. Different courses are instructed for the schools with the same strategy. I believe the curriculum of the schools should be similar to the ones given at the university [SAU209].*
>
> *We will encounter too many difficulties if a field exam is implemented. We may experience problems about the content that we'll teach when assigned as a teacher [SAU52].*
>
> *It is problematic because the friends who want to be transferred to another university suffer from it [SAU64].*
>
> *They tried the new curriculum at Sakarya University first, which created a dilemma for us. We are feeling like test subjects [SAU169].*

55 students expressed positive opinions such as *having less out-of-field courses and less heavy workload, getting improvements in education, supporting personal development and addressing to the department.* Some of the positive students' comments are as below:

> *I'm happy with the courses. Other universities have courses that are not related to our field, such as chemistry, physics, as compulsory, but we don't have these courses in the curriculum, which creates an advantage [SAU47].*
>
> *There are few number of courses, which is an advantage for us, exam stress is at low level [SAU44].*
>
> *The improvements made in the curriculum makes me happy. Even so, there should be more changes. Curriculums should evolve according to the conditions of the age[SAU171].*

We have more time to improve ourselves [SAU54].

> *I think we have a better program than other universities because it was organized within our department [SAU40].*

Results and Discussion

In this study, the problems and professional concerns of the students who are studying in different CEIT programs were examined. In this context, a university which follows a new curriculum and a public university which follows the existing curriculum were compared in terms of problems experienced during undergraduate education and students' professional concerns for the future, more over students' opinions about the new curriculum were taken.

As a result of the study, according to the findings of the first research questions it can be said that the students of existing CEIT curriculum encounter more problems during undergraduate education. Hence, the base of the problems encountered during the undergraduate education of the existing program was found to be curriculum. The literature review revealed that Altun and Ateş (2008), Dursun and Çuhadar (2009), Telli and Selim (2009), Sanalan et al. (2010), Eşel et al. (2012), Yeşiltepe and Erdoğan (2013)stated that the most important problems that CEIT students encountered are based on the curriculum. Hence, the difference observed between the two CEIT programs that follow different processes, can be interpreted as the problems encountered in the undergraduate education are based on the curriculums.

Regarding the findings related to the second research questions, it can be said that the professional concerns of the students following existing CEIT curriculum are higher than the ones of new curriculum's students. The literature review featuring the studies about the professional concerns of pre-service teachers revealed that there are many variables affecting their concerns, such as gender, discipline, academic programs, physical status of the faculty, grade level, economic status of parents, employment concerns, attitude towards the profession, and unavailability of the jobs related to the profession (Türkdoğan, 2015; Doğan and Çoban, 2009; Gizir, 2005; Kaya and Büyükkasap 2005). Hence, since professional concerns may be due to many variables, it cannot be said that the difference between universities aroused from the curriculums.

The analysis of the answers given to open-ended question were used to answer third research question. In this regard, all participants were first asked to state their opinions about if curricular changes are subject to made, which courses should be modified and how. Participants have expressed ten sub-themes under "potential problems of the curriculum" category, namely *the use of monotonous instruction methods-techniques, unbalanced course distribution, the content remains at basic level, inadequacy of physical-technological infrastructure, inadequacy of faculty members, failing to stay up-to-date, students' workload, ineffective internship, mandating selective courses, and allocating insufficient time for field courses;* in addition to these 10 sub-themes *unwilling student* was also mentioned as another sub-theme. CEIT Students stated that the courses such as programming languages and database are instructed based on memorization, but they should be more practice-based.

Under the *unbalanced course distribution* theme, the majority of the students from both universities expressed that the courses such as programming, database, hardware, and design should occupy more place in the curriculum. Most of the students of existing CEIT curriculum stated that these field courses should replace the courses such as physics, history; whereas students of new CEIT curriculum stated that educational courses should be reduced and replaced by these courses. Kurtoğlu Erden (2014) and Durmaz reported that graduated students have problems in terms of technological competence and technical issues, hence there may be arrangements for these field courses. Regarding *the content remaining at basic level*, the students of both universities stated that they want the content of some field courses to be more detailed and get specialized in their area of interest; whereas under *failing to stay up-to-date* sub-theme they emphasized that the content and teaching materials should be up-to-date, and they want to keep pace with the improving technology. Hence, students stated that they want to use modern technologies in the courses, such as interactive whiteboard, tablet, and they want to learn latest software (android, java, etc.). Considering most of the aforementioned statements, we can say that students want to possess the competencies required for field courses, as well as to increase job opportunities for themselves in private sector in case of not being assigned to the schools.

Another problem stated by CEIT department students of both universities is the *inadequacy of physical-technological infrastructure.* The issues such as the short comings in the classroom environment, excessive class sizes, limited practice areas, technological inability, failure to use the lab actively, and lack of computers are the problems that especially the students of new curriculum have emphasized. Another important issue underlined by the students of both universities is *the inadequacy of faculty members.* In addition to the academic shortcomings of faculty members in field courses, breakdown of live communication with students, remaining outnumbered, the incompetence of faculty members in terms of the instruction methods and techniques, were also mentioned. These technique and technological shortcomings are significant in terms of the effectiveness of the applied curriculum. Especially, upgrading the computer lab and classroom to the level that they fulfill student's needs may affect the quality of the education. Altun and Ateş (2008), Sanalan et al. (2010) have reported shortcomings in technologic infrastructure and the lack of field specialists, and emphasized that fulfilling these deficiencies may affect the quality of the education.

In order to answer second research question, students' views about the future were questioned. According to the answers, seven sub-themes were appeared under professional concerns for the future theme, namely *assignment anxiety, discredit of the discipline, ambiguous job definition, incompetent graduates, limited employment opportunities, uncertainty about the future of the department and the lack of technological activities.* The students of both universities experience *assignment anxiety* due to the necessity of achieving a high score from KPSS, too many students being enrolled to the department, and the cadre allocated to the discipline being too low. Another problem that is considered to be important by most of the students is the *discredit* of the discipline because of having few computer courses, perceiving computer course as unnecessary, and everybody believing to be competent at computer. Other problems considered as important by the students are: *lack of a* clear *job definition, lack of specialization due to getting the knowledge at basic level, thus graduates perceiving themselves as incompetent, limited job opportunities, uncertainties and the lack of technological activities* because of the pessimism of the CEIT department, and *failure* to organize enough seminars at the department. Particularly these problems are the ones that are commonly experienced by the students of both universities. Deryakulu and Olkun (2006) have also reported that wrong policies encountered in teacher assignment cadres create assignment anxiety in students.

The question towards the third research question was only asked to CEIT pre-service teacher of the new curriculum, and their opinion for following a different curriculum than other universities' CEIT programs were investigated. Participants who stated positive opinions mentioned the followings: *having less out-of-field courses, having less workload, getting improvements in education, supporting personal development and addressing to the department.* Participants who perceived the modified curriculum as positive considered to have less out-of-field course as a positive factor and stated that they get rid of

the workload of excessive courses. Moreover, some participants stated that curriculums should get modified according to changing conditions, hence the modification is a positive development and they are lucky to get trained by such a curriculum. The positive opinions of the students who experienced new curriculum is an indication that the problems mentioned in the previous studies conducted in CEIT departments, such as having too many out-of-field courses in the curriculum, and the courses being out-of-date (Altun and Ateş, 2008; Dursun and Çuhadar, 2009) may be solved, which is a positive indication.

Another sub-theme regarding the implementation of the new curriculum is negative student opinions such as *insufficient teaching methods, lack of uniformity across curriculums, having field exam anxiety, encountering problems in internal transfer, not being up-to-date, having a narrow teaching content* and *giving the feeling of being a test-subject*. Participants think that the amount of projects and homework was increased with the new curriculum, and hence they cannot get properly prepared to KPSS. On the other hand, the biggest concern of negative opinion owners is the likelihood of the introduction of a KPSS field exam for the graduates of CEIT department and the idea that the content of the exam will be based on the curriculum followed in other universities. In addition, the difference in the curriculum of the department poses problems for the students who want to make internal transfer and they want uniformity across curriculums. The review of the negative answers given to the curriculum modification indicates that they emphasized the problems encountered in the application of the curriculum rather than the curriculum itself.

Some of the students who are neutral towards the curriculum modification said that they don't have any idea about the curriculum of other universities, whereas some of them stated that they don't have any information about this modification. As a result of this finding it can be deducted that some students of new CEIT curriculum are not aware that the curriculum implemented in their department is different than other universities.

Based on the findings of this research, some suggestions can be submitted for future research and practices. First of all, it can be seen that especially the students of existing curriculum want the courses that can be used in their professional life rather than out-of-field courses. In this regard, course hours of out-of-field courses should be reduced or selective field courses should be added. In addition, the development of CEIT department students should be enhanced by offering them the opportunity to take the courses that are related to their area of interest or specialization, instead of mandating selective courses, which has been considered as a problem.

In this research, CEIT curriculum was evaluated according to the views of the students. Further researches may evaluate curriculums using detailed program assessment models. For example, the product may be evaluated including the graduates within the study group as well or an evaluation addressing the elements of the program can be performed. The data collected for this research was limited with two universities. Further researches may add other universities to the study group and compare the results.

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