



An Overview of the Current Career Status of CEIT Department Graduates

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Abstract

Since the establishment of the Computer Education and Instructional Technology (CEIT) departments, the curriculum has changed many times, the types of points considered as the basis for the placement of the department have differentiated and even the threshold score criteria have been introduced, and in the appointments made as teachers to state institutions, the appointments have been made with relatively less number of appointments compared to the general. Although some students chose this department to become teachers, some students chose to specialize in the field of computers and aimed to turn to different sectors before they graduated. Thanks to the wide range of professions that the field offers to graduates, there are quite successful graduates among those who turn to different fields in terms of their interests. However, the number of graduates who chose this department to become a teacher and felt sorry for not being appointed to the public is considerably high. Within the scope of the study, views were collected from a total of 85 graduate, 38 female and 47 male, who graduated in the last four years. Online semi-structured form was used as data collection tool. Most of the graduates who filled out the form stated that they worked in various jobs during their education (n = 44). However, a significant portion of the graduates stated that they are not currently working. (n=37). It has been observed that only 24 of the working graduates are working as teachers, only 17 of them are working in the public sector, but seven of them are sub-teachers in public school, only nine are permanent teachers in public school and one is a lecturer (academician). It was observed that among the employees, eight people were in the IT sector, five people were police officers, two were military officers, three were civil servants in different public institutions and five people were working in different sectors. Considering the graduates' views about the satisfaction level of ICT teacher, it was stated that their satisfaction decreased due to the belief that their internal motivation in the professional context was at a good level, but that their external perception towards the profession was negative. It was stated that ICT teachers in particular were seen as worthless and/or tinkerers. Among the difficulties encountered, it was observed that the majority of them referred to the status of not being appointed and unemployment. The information provided by the graduates on their current career situation and their views on the department present an important report in planning for both graduates and students who are currently studying at these times when the future of the departments are discussed.

Keywords

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About Article

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Introduction

In the 20th century, in addition to the use of the blackboard in teaching, the visual teaching movement started with slide presentations and silent films, followed by audio-visual teaching. The best examples are radio and television. II. During World War II, animated pictures and psychological documentaries were used to encourage soldiers. After the war, the effect of these techniques was not ignored and various researches started to be carried out. In this context, the use of films, presentations, radios, recording devices, televisions, projections and cassettes in teaching has been examined. Educational televisions came to the fore. Cognitive approaches that have been introduced recently have important implications. In the 1960s, machine learning began to be studied and now tools different from audio-visual technologies have been tried. In the 1980s, instructional design came to the fore; cognitive and constructivist practices have begun to be implemented. The use of computers, which started to be used as a communication tool in the 1990s, has become increasingly widespread. In the 2000s, distance education started to be viewed in the context of instructional technologies. In the last decade, studies have been carried out to enrich the learning environments with enhanced real and artificial intelligence applications (Kim et al., 2014; Molenda, 2014; Spector, 2014). The establishment of the Republic of Turkey (1923) and the adoption of the Unification of Education Law (Turkish: Tevhid-i Tedrisat kanunu) (1924) and by living together, and projects with approaches such as learning through discovery methods have emerged.

In this way, it is aimed to raise individuals who question, research and think rationally. In addition to these, as of 1935, planning to support continuous education, using meaningful learning and group working methods emerged. In addition to these, it has been ensured that the institutes have radios and dictionaries are supported with pictures. Between 1950-1985, the importance of mass education and individual education has been understood. In addition, it supports this with the necessity of using the appropriate tool in a suitable place and effectively; Laboratory method, lecture boards, brochures, tapes, audio-visual training tools are available. The importance of instructional design processes has started to be taken into account (Reisoğlu, Kocaman Karoğlu ve Gedik, 2016). As of the 1990s, applications for the use of computers in education started with the spread of personal computers. So much so that by the year 1997 began to be offered as an elective computer courses in Turkey and in this context it has been established laboratories in some schools. In order to train specialist teachers who can give these courses, Computer Education and Instructional Technology Departments were established in 15 education faculties in 1998 and they started to give their first graduates as of 2002. Currently, 63 universities have CEIT departments.

It is important to examine the overlapping points of the department with 21st century skills in order to evaluate the current situation and plan accordingly. In this way, more effective inferences and recommendations can be made. In the 21st century, with the rapid development and widespread use of technology, the skills that people should have have been a period that rapidly changed. In this direction, it has made it necessary for people to have skills such as technology literacy. However, with the development of technology and machines, routine physical work that people previously did was started to be done by machines and therefore people are expected to have new skills such as analytical thinking, critical thinking, problem solving and advanced communication skills instead of physical labor (Black 2009; Levy & Murnane, 2012). In order for people to adapt to these changes, it is inevitable that learning and teaching processes go through a radical change. In this context, it is important to first determine 21st century student skills and to update teaching processes accordingly.

In the classifications made as 21st century student skills, various models are presented regarding what skills students should have in order to be successful in their daily, academic or professional life in the 21st century (Trilling & Fadel, 2009). It is seen that researchers classify 21st century skills in different ways. For example, Partnership for 21st Century Skills (P21) (2009) divided 21st century student skills into three main categories and subthemes under them. These categories are; learning and innovation skills (creativity and innovation, critical thinking and problem solving, communication and collaboration), information, media and technology skills (information literacy, media literacy and technology literacy), life and career skills (flexibility and adaptability, assertiveness and self-management) social and intercultural skills, productivity and accountability, leadership and responsibility). Trilling and Fadel (2009) rearranged the categories specified in P21 in

order to be more catchy and said "3R * 7C = 21. yy skills ", which is easier to remember. Accordingly, they express 3R basic skills such as reading, writing (wRiting) and arithmetic (aRithmetic); 7C, Critical Thinking and Problem-solving, Creativity and Innovation, collaboration, teamwork and leadership (Collaboration, Teamwork, and Leadership), Cross-cultural Understanding. It refers to 21st century skills such as Communication and Media Fluency, Computing and ICT Fluency, Career and Learning Self-reliance in career and learning. In another classification made, 21st century student skills consist of three main categories and their sub-themes. These skills are; expressed as cognitive skills (non-routine problem solving, critical thinking and systematic thinking skills), interpersonal skills (complex communication skills, social skills, teamwork, cultural sensitivity and dealing with diversity / diversity) and internal skills (self-management, time management, self-regulation, adaptability and execution function) (Koenig, 2011). In another study, it was seen that the skills that should be possessed in the 21st century were classified as critical thinking, creativity, cooperation, motivation, and metacognitive skills (Lai & Viering (2012). It can be said that he focuses on cognitive skills. Teachers and educational institutions have a great role in the development of these skills. In order to keep up with the times, it is a necessity to transform traditional teaching methods that evaluate pure behavior and focus on students' skills such as high-level thinking, problem solving, information literacy and technology literacy. CEIT departments will also have a large share in this transformation process. It is a fact that graduates who are technology literate in terms of providing the education needed by 21st century students in schools and in terms of contributing to society and production in the private sector and who have a skill that develops high-level thinking skills such as programming are valuable.

If the current state of ICT teaching in Turkey will be examined; Issues such as the appointment status of pre-service teachers who graduated from the CEIT department, their quotas, whether their courses are compulsory or elective have been the subject of controversy, and even a serious problem such as the closability of this department has come up. It is seen that the importance and necessity of ICT teaching, which is explained to the student with very basic tasks such as transferring technical information or transferring the hardware features of the computer, is still not understood in the digital age. ICT teaching is a profession that has the potential to work in different fields and its employment is very important. CEIT departments have an important place in raising individuals who can meet the requirements of the digital age such as STEM, robotic coding, distance education and programming. As stated in the 2023 vision of the Ministry of National Education, teachers and students are expected to adapt to the digital transformation process in the new generation education processes. The people who will prepare and support teachers and students for this transformation, provide academic and technical support and actively support the digital transformation process will be the graduates of CEIT in the context of their competencies. Coding, robotics, etc., which are constantly on the agenda. The graduates of the CEIT department have a critical importance in conveying the subjects to the students in the most accurate way. Especially when looking at the curriculum published by the Ministry of National Education, it can be seen that people with these competencies can only be graduates of the CEIT department (Curriculum - I, 2018; Curriculum - II, 2018; Curriculum - III, 2018). In addition, the COVID-19 pandemic situation, which started at the end of 2019 and affected the life of the whole world especially in the first half of 2020, and the active roles of the CEIT departments in the management of distance education processes, planning, content production, sharing, and the importance of continuing the education process without a hitch were once again understood. However, teacher appointments are not in a promising situation in terms of both choosing a department with this importance and receiving education in this department. When the appointment status of the graduates of the CEIT department is examined, a gradually decreasing picture is encountered. When the quotas given to all departments are examined, it is seen that the quotas given to the CEIT department generally vary between 2% - 3%. Considering the current conditions, this quota, which is quite insufficient, causes both CEIT undergraduate students and CEIT graduates to lose their motivation. Unfortunately, the weak foot of digitalism in the education process, which has spread to the entire stage, will also prevent training students who are properly equipped with digital skills. So, what do ICT teachers do in schools? The Informatics and Software Course, which were included in the curriculum as an elective until the 2012 academic year, became compulsory in the 5th and 6th grades in the 2013 academic year, and the elective in the 7th

and 8th grades, and the evaluation with grades started. In addition, with the FATİH project, an Information Technology Counselor is assigned to schools with at least 8 classrooms and 8 smart boards. IT Counselors are considered to be filled in return for a salary and are charged as additional 18 hours of lessons. In addition to the priority of assigning ICT teachers, teachers from different branches are also assigned to the 120-hour Information Technology Counselor Course within the scope of the Ministry of National Education's in-service training. Digital transformation and digital requirements, which cannot be limited only to the field of education, now constitute the life cycle of the new generation. Participating in this cycle in the most correct way and benefiting from the cycle in line with our needs will only be possible by mastering the right digital skills. This will be possible by giving the necessary importance to the CEIT departments and putting them into operation effectively. Assignment etc. Considering the difficulties experienced regarding the situations, the decrease in the preference rate of this section is another problem that comes with it. As a result, this study was carried out in order to examine the causes of the problems experienced from the perspective of the graduates of this department. Therefore, the main purpose of the research is; To reveal the current employment status of ICT teachers who recently graduated from the department and their perceptions in this context. The research questions that this purpose covers are as follows.

1. Is there a significant difference between the graduates' views about their graduation from the department in the context of other demographic data (gender, graduation year, undergraduate employment status and / or the sector they work in) according to their employment status (working, not working)?
2. In the context of demographic data (gender, graduation year, undergraduate employment status, current employment status / sector) of the graduates;
 - a. What are the views on the satisfaction of ICT teaching?
 - b. What are the views on the value of ICT teaching in others?
 - c. What are the views on the position and importance of ICT teaching in Ministry of National Education?
 - ç. What are the views on the benefits of being a department graduate?
 - d. What are the views on the difficulties of being a department graduate?

Method

In order to make in-depth analysis within the scope of the purpose of the research, a case study was conducted in the context of qualitative research method. The situation can be defined as a phenomenon that occurs within the specified context. In the case study, researchers collect and analyze data by concentrating on the relevant phenomenon. In this direction, it is sometimes possible to examine the situation that researchers cannot control in depth (Miles & Huberman, 2016; Yıldırım & Şimşek, 2016).

Research Group (Universe, Sample, Study Group)

Within the scope of the research, a total of 85 graduates, 38 female and 47 male, were reached. 25 people graduated in 2016, 12 in 2017, 22 in 2018 and 26 in 2019. 44 graduates worked in various sectors (31 people in service, 10 people in informatics, four people in education, 16 people in other sectors, some graduates in more than one sector). 48 of the graduates are currently working. It has been observed that only 24 of the working graduates are working as teachers, only 17 of them are working in the public sector, but seven of them are sub-teachers in public school, only nine are permanent teachers in public school and one is a lecturer (academician).

Measurements

In the research, a semi-structured online interview form was prepared in line with the opinions of the last four years graduates. The form consists of three parts.

- (1) Demographic data,
- (2) Scoring likert-type views,
- (3) Collecting opinions through open-ended items.

Data Analysis

In line with the data collected from the participants, frequency values were presented to the items that were evaluated as Likert according to various demographic data, and the themes were determined by coding with content analysis in the items for which qualitative opinions were collected. At the same time, cross-case analysis was performed on the collected data, enabling a more systematic presentation and interpretation of intensive data with cross tables (Johnson & Christensen, 2014; Patton, 2014; Can, 2014; Miles & Huberman, 2016). Within the scope of the first research question, nonparametric chi-square analysis was performed in the analysis of qualitative data that indicates the level. The reason for this is to be able to make more valid comments about the relevant qualitative data. Such that; it is stated that various researchers also indicate the ordering and classification by analyzing qualitative data with chi-square and it has been stated that the significance states between the relevant variables can be interpreted (Maxwell, 1971 Cited in. Zibrán, 2007; Can, 2014; Vehid & Eral, 2014). The answers to other research questions were evaluated in the context of the collected codes and the themes created.

Validity and Reliability

The detailed explanation of all analysis processes carried out within the scope of the research is one of the steps that strengthens the validity (Yıldırım & Şimşek, 2016). In this context, the findings were supported by citing the views analyzed. In order to ensure internal validity, the literature was examined first, experts who conducted qualitative research were consulted, and attention was paid to ensure that the interview questions were simple and clear. In the context of external validity, various demographic data were collected in order to clearly describe the current situation of the graduates whose opinions were taken. In this direction, cross-table analyzes are included in the findings in order to contribute to external validity. In order to ensure reliability, two different researchers were allowed to code independently (See Miles & Huberman, 2016). Accordingly, the agreement percentages were calculated in order to measure the interobserver reliability and to demonstrate the consensus. In this context, it was determined that the percentages of compliance with the coding in the questions directed to the graduates were between 85% and 92%.

Results

General Views of Unemployed Graduates

The opinions of the participants within the scope of the question items directed to the unemployed graduates are shown in Table 1. Their responses to the questions posed to graduates who currently do not work; It has been evaluated according to the gender of the graduates, their status of undergraduate employment and their graduation years. In this context, it was examined whether there was a significant difference depending on each variable. The questions directed to the related graduates are; It includes the desire to be a teacher, to work for Public Personnel Selection Exam (in Turkish KPSS), to work in a profession other than teaching, and to make an effort to become a teacher in case of working in a profession other than teaching. Considering the answers given to the questions, it was seen that there were significant differences between different variables regarding the desire to work in a profession other than teaching. Accordingly, when the wishes of the graduates who are not currently working to work in a different profession are examined, it is seen that there is a significant difference in favor of the graduates who have worked while studying at undergraduate degree. In addition, it has been observed that there is a significant difference between the graduates of 2016 in favor of the 2019 graduates.

General Views of Working Graduates

The opinions of the participants within the scope of the question items directed to the working graduates are as shown in Table 2. Their responses to the questions posed to currently employed graduates; It has been evaluated according to the gender of the graduates, their undergraduate employment status, their years of graduation and the sectors they work in. In the context, it was examined whether there is a significant difference depending on each variable. The questions directed to the related graduates are; It covers the level of positive attitude towards teaching in the state institution, the level of satisfaction in the current profession, the possible efforts of those who work in

a profession other than teaching to become a teacher, and the employment status of those working in other professions for PPSE. Considering the answers given to the questions asked, a significant difference was found between the different variables for the possible efforts of only teaching in the state institution and the possible efforts of those working in other professions to become teachers. Accordingly, a significant difference was observed in favor of 2016 and 2018 graduates in terms of positive attitude towards teaching in a state institution. In addition, a significant difference was found in favor of those who did not work while studying at undergraduate degree in the context of possible efforts of other professions to become teachers.

Tablo 1. Views of graduates having no job

	Variables	Do you have a desire to be a teacher?	Are you working for the public personnel selection examination?	Do you want to work in a profession other than teaching?	If you work in a profession other than teaching, would you make an effort to become a teacher in the future?
Gender	Female (20)	A: 1, T: 19	D: 5, S: 3, A: 4, T: 8	D: 5, S: 8, A: 3, T: 4	D: 2, S: 2, A: 2, T: 14
	Male (17)	D: 1, A:5, T: 11	D:4, A: 5, T: 8	D: 4, S: 1, A: 6, T: 6	D: 1, A: 8, T: 8
	Total (37)	D: 1, A: 6, T: 30	D: 9, S: 3, A: 9, T: 16	D: 9, S: 9, A: 9, T: 10	D: 3, S: 2, A: 10, T: 22
	Statistical Sign. Pearson Chi-square	,061 5,594	,392 2,999	,080 6,757	,061 7,375
Working in a job while being student	Having a job (19)	D: 1, A: 3, T: 15	D: 7, S: 2, A: 4, T: 6	D: 2, S: 3, A: 7, T: 7	S: 2, A: 6, T: 11
	Having no job (18)	A: 3, T: 15	D: 2, S: 1, A: 5, T: 10	D: 7, S: 6, A: 2, T: 3	D: 3, A: 4, T: 11
	Total (37)	D: 1, A: 6, T: 30	D: 9, S: 3, A: 9, T: 16	D: 9, S: 9, A: 9, T: 10	D: 3, S: 2, A: 10, T: 22
	Statistical Sign. Pearson Chi-square	,615 ,974	,241 4,198	0,43 8,134	,146 5,377
Graduation year	2016 (10)	A:2, T: 8	D: 1, S: 1, A: 2, T: 6	D: 5, S: 2, A: 1, T: 2	D: 1, S: 1, A: 3, T: 5
	2017 (1)	T: 1	T: 1	D: 1	T: 1
	2018 (8)	T: 8	D: 3, S: 1, A: 1, T: 3	S: 4, A: 4	D: 1, T: 7
	2019 (18)	D: 1, A: 4, T: 13	D: 5, S: 1, A: 6, T: 6	D: 3, S: 3, A: 4, T: 8	D: 1, S: 1, A: 7, T: 9
	Total (37)	D: 1, A: 6, T: 30	D: 9, S: 3, A: 9, T: 16	D: 9, S: 9, A: 9, T: 10	D: 3, S: 2, A: 10, T: 22
Statistical Sign. Pearson Chi-square	,734 3,577	,793 5,451	,032 18,290	,689 6,496	

Abbreviations D: Disagree, S: Somewhat agree, A: Agree, T: Strongly agree

General Views of Graduates

The views of the participants collected within the scope of the question items directed to all graduates are as shown in Table 3. Answers given to the questions directed to the graduates; It has been evaluated according to the gender of the graduates, their undergraduate employment status, their years of graduation and the sectors they work in. In this context, it was examined whether there is a significant difference depending on each variable. The questions forwarded to the relevant graduates are; It includes wanting to work in a profession other than teaching, the effect of the education received in the department on professional preferences, satisfaction with being a graduate of the department, the opinion about the place of the department in higher education, whether they will choose this department retrospectively, recommending the department to others and receiving graduate education in the department. Considering the answers given to the questions, a significant difference was found between different variables in the answers given to the questions about wanting to work in a profession other than teaching, the effect of education received in the department on professional preferences, and recommending the department to others. Considering the situation of wanting to work in a profession other than teaching; In terms of gender, it was found that there is a

significant difference in favor of employees while studying according to the status of working in undergraduate degree. Considering the effect of the education received in the department on occupational preferences, it is seen that there is a significant difference in favor of those who are not currently working in the context of the sectors studied. In terms of recommending the section to others, it was found that there is a significant difference in favor of males in terms of gender.

Satisfaction Level of ICT Teachers

When the comments made by the graduates of the department on the satisfaction level of ICT teaching, it was found that there were eight codes. These are; occupational satisfaction rate, opportunities given to ICT teaching, professional importance, assignment status, expectations for the future, experienced teaching processes, perception of the profession and the perception of being a CEIT department graduate. The frequencies of the graduates who made comments on the codes determined in Table 4 in the context of different levels are given. The frequencies of the graduates who made comments about the codes determined in Table 4 in the context of different levels are given.

“I am not professionally satisfied since there is no computer lab at the school where I work.”

“When I work as a sub-teacher in the public school, we are seen as a technical service rather than a teacher, regardless of gender, from the point of view of both school administrators and other branches. In my experience in private school, I saw that education is handled entirely with the logic of trade, and they use our branch more for advertising purposes. Therefore, I could not feel the satisfaction due to my profession, both in the public and private schools. If I compare the two, I can say that the public is better despite all the impossibility.”

“Unfortunately, I think my profession does not see the necessary importance. It is very difficult to be appointed and the private school has no guarantee. I think that the education I received is behind the developing technology.”

Negative views prevail in the context of appointment situations; 12 people commented negatively and one commented neutral. There is equality in gender variables. The negative views of unemployed graduates drew attention. Views of some graduates who negatively commented on their appointment status and currently had no job;

“It is very difficult to be appointed and the private school has no guarantee.”

“The number of appointments is low, which prevents me from doing my job and prevents us from getting satisfaction.”

“There is a problem of not being appointed.”

In the context of expectations for the future, only two views were stated, and they are also negative. It was observed that these views were expressed by males. These are;

“The future of the department doesn't look very good.”

“I have worries about the future.”

It is not possible to say that there is a significant difference between the views expressed depending on the realization of the teaching processes in the profession. Eight people commented positively, six commented negatively, and one person neutral. As it can be said that there is no significant difference in terms of gender, it was noted that five out of seven graduates who had no job for this code expressed positive views. Views of some graduates with positive comments;

“Being a light on the way to future generations is a completely different feeling.”

“With the education given in public universities, our students are generally educated at the level of knowing and understanding. Since the logic of coding lessons is difficult to grasp, it is much more difficult to learn coding at the

synthesis level. But when we get through these processes, two things appear for sure; 1- a teacher who brings his students to a good place because he loves his job, 2- a student who comes to and brings good places because of the good education.”

“When you convince your colleagues and students of what you can do in the school, every project, application etc, you can see support on issues. I think I have proved myself in robotics and coding in every institution I work with, and thus I saw that I was one of the most anticipated teachers in the school. I can summarize this situation as follows, when the bell rings while doing an activity related to coding, the children say, "Can we not go out to recess? shows that every effort you promise pays off to the end.”

Tablo 2. Views of graduates having a job

	Variables	How positive do you think about teaching in a public school?	What is your level of satisfaction with your current job?	If you are working in a different sector than teaching, what is the level of effort you are likely to make to move into the teaching profession in the future? (n=41)	If you are working in different sector / institution, what is your perspective on working for the public personnel selection examination and being appointed as a teacher? (n=44)
Gender	Female (20)	D: 2, A: 5, T: 11	D: 3, S: 1, A: 6, T: 8	D: 2, S: 1, A: 4, T: 7	D: 4, A: 6, T: 7
	Male (17)	D: 3, S: 3, A: 3, T: 20	D: 1, S: 1, A: 9, T: 18	D: 7, S: 9, A: 2, T: 9	D: 9, S: 5, A: 6, T: 7
	Total (37)	D: 5, S: 3, A: 8, T: 31	D: 4, S: 2, A: 15, T: 26	D: 9, S: 10, A: 6, T: 16	D: 13, S: 5, A: 12, T: 14
	Statistical Sign. Pearson Chi-square	,266 3,955	,386 3,038	,084 6,640	,179 4,904
Working in a job while being student	Having a job (19)	D: 3, S: 2, A: 5, T: 15	D: 1, S: 1, A: 10, T: 13	D: 6, S: 9, A: 2, T: 6	D: 9, S: 4, A: 5, T: 6
	Having no job (18)	D: 2, S: 1, A: 3, T: 16	D: 3, S: 1, A: 5, T: 13	D: 3, S: 1, A: 4, T: 10	D: 4, S: 1, A: 7, T: 8
	Total (37)	D: 5, S: 3, A: 8, T: 31	D: 4, S: 2, A: 15, T: 26	D: 9, S: 10, A: 6, T: 16	D: 13, S: 5, A: 12, T: 14
	Statistical Sign. Pearson Chi-square	,831 ,878	,478 2,485	,035 8,585	,260 4,012
Graduation year	2016 (10)	D: 1, S: 1, A: 1, T: 12	S: 1, A: 6, T: 8	D: 1, S: 3, A: 1, T: 6	D: 3, A: 3, T: 6
	2017 (1)	D: 2, A: 5, T: 3	D: 2, A: 1, T: 7	D: 4, S: 2, A: 2, T: 1	D: 5, S: 1, A: 3, T: 1
	2018 (8)	S: 1, T: 13	D: 1, S: 1, A: 5, T: 7	D: 1, S: 2, A: 2, T: 8	D: 2, S: 2, A: 5, T: 5
	2019 (18)	D: 2, S: 1, A: 2, T: 3	D: 1, A: 3, T: 4	D: 3, S: 3, A: 1, T: 1	D: 3, S: 2, A: 1, T: 2
	Total (37)	D: 5, S: 3, A: 8, T: 31	D: 4, S: 2, A: 15, T: 26	D: 9, S: 10, A: 6, T: 16	D: 13, S: 5, A: 12, T: 14
	Statistical Sign. Pearson Chi-square	,017 20,152	,666 6,720	,199 12,261	,388 9,551
Working sector	Teacher in a public school (9)	A: 1, T: 8	A: 3, T: 6	D: 2, S: 1, T: 3	D: 1, A: 3, T: 2
	Teacher in a private school (7)	D: 2, S: 1, A: 1, T: 3	S: 1, A: 3, T: 3	D: 3, S: 1, T: 3	D: 2, S: 1, A: 2, T: 2
	Sub-teacher in a public school (6)	T: 6	D: 1, A: 2, T: 3	T: 3	A: 1, T: 5
	Academic staff (1)	T: 1	T: 1	D: 1	D: 1
	IT sector (8)	D: 2, S: 2, A: 2, T: 2	A: 3, T: 5	D: 2, S: 4, A: 1, T: 1	D: 4, S: 2, A: 1, T: 1
	Other public institutions (3)	T: 3	D: 1, A: 1, T: 1	S: 2, T: 1	S: 1, A: 1, T: 1
	Other sectors (6)	D: 1, A: 3, T: 2	D: 2, A: 1, T: 3	D: 1, S: 1, A: 3, T: 1	D: 3, A: 2, T: 1
	Police officer (5)	A: 1, T: 4	S: 1, A: 1, T: 3	S: 1, A: 1, T: 3	D: 1, S: 1, A: 2, T: 1
	Military officer (2)	T: 2	A: 1, T: 1	A: 1, T: 1	D: 1, T: 1
Total (47)	D: 5, S: 3, A: 8, T: 31	D: 4, S: 2, A: 15, T: 26	D: 9, S: 10, A: 6, T: 16	D: 13, S: 5, A: 12, T: 14	
Statistical Sign. Pearson Chi-square	,320 26,671	,778 18,496	,180 30,135	,528 22,864	

Abbreviations D: Disagree, S: Somewhat agree, A: Agree, T: Strongly agree

Views of some graduates who made negative comments;

“The undergraduate education received is not applicable in the current education system. Individuals who have improved themselves in every field are dulled by education policies.”

“I think that coding the language of the future and the robotics, which is its product, should be at every level (compulsory) gradually in the curriculum, and its infrastructure should be established.”

“Below the undergraduate level, teachers are now just babysitting. The lecture notes given to the students did not matter. Even if the students fail, they are entitled to move up and there is no such thing as failing. As a result, the education you give does not matter.”

Tablo 3. Views of graduates

	Variables	Do you want to work in a sector other than teaching?	What is the effect of the education you received in the department on your professional preferences?	What is your satisfaction with being a graduate of this department?	Do you believe that the department has an important place in higher education?
Gender	Female (38)	D: 13, S: 14, A: 5, T: 6	D: 2, S: 4, A: 18, T: 14	D: 3, S: 6, A: 19, T: 10	D: 3, S: 6, A: 11, T: 18
	Male (47)	D: 10, S: 5, A: 14, T: 18	D: 5, S: 6, A: 18, T: 18	D: 1, S: 11, A: 19, T: 16	D: 8, S: 6, A: 13, T: 20
	Total (85)	D: 23, S: 19, A: 19, T: 24	D: 7, S: 10, A: 36, T: 32	D: 4, S: 17, A: 38, T: 26	D: 11, S: 12, A: 24, T: 38
	Statistical Sign.	,003	,742	,402	,657
	Pearson Chi-square	14,123	1,247	2,935	1,610
Working in a job while being student	Having a job (44)	D: 6, S: 12, A: 11, T: 15	D: 6, S: 4, A: 19, T: 15	D: 3, S: 8, A: 21, T: 12	D: 7, S: 8, A: 9, T: 20
	Having no job (41)	D: 17, S: 7, A: 8, T: 9	D: 1, S: 6, A: 17, T: 17	D: 1, S: 9, A: 17, T: 14	D: 4, S: 4, A: 15, T: 18
	Total (85)	D: 23, S: 19, A: 19, T: 24	D: 7, S: 10, A: 36, T: 32	D: 4, S: 17, A: 38, T: 26	D: 11, S: 12, A: 24, T: 38
	Statistical Sign.	,037	,250	,675	,301
	Pearson Chi-square	8,455	4,107	1,530	3,655
Graduation year	2016 (25)	D: 12, S: 3, A: 6, T: 4	D: 2, S: 5, A: 11, T: 7	D: 2, S: 8, A: 10, T: 5	D: 4, S: 2, A: 10, T: 9
	2017 (12)	D: 3, S: 3, A: 1, T: 5	D: 1, S: 3, A: 4, T: 4	S: 1, A: 7, T: 4	D: 2, S: 2, A: 2, T: 6
	2018 (22)	D: 4, S: 7, A: 6, T: 5	D: 1, S: 1, A: 12, T: 8	S: 5, A: 8, T: 9	S: 4, A: 7, T: 11
	2019 (26)	D: 4, S: 6, A: 6, T: 10	D: 3, S: 1, A: 9, T: 13	D: 2, S: 3, A: 13, T: 8	D: 5, S: 4, A: 5, T: 12
	Statistical Sign.	,173	,399	,425	,510
Working sector	Pearson Chi-square	12,766	9,425	9,139	8,246
	Having no job (37)	D: 10, S: 11, A: 8, T: 8	D: 1, S: 2, A: 17, T: 17	D: 2, S: 7, A: 18, T: 10	D: 5, S: 6, A: 7, T: 19
	Teacher in a public school (9)	D: 6, S: 3	A: 5, T: 4	A: 5, T: 4	S: 1, A: 4, T: 4
	Teacher in a private school (7)	D: 2 A: 2, T: 3	S: 1, A: 3, T: 3	A: 5, T: 2	A: 5, T: 2
	Sub-teacher in a public school (7)	D: 4, S: 2, T: 1	S: 2, A: 3, T: 2	S: 2, A: 1, T: 4	S: 1, A: 2, T: 4
	Academic staff (1)	S: 1	T: 1	A: 1	A: 1
	IT sector (8)	A: 1, T: 7	D: 1, S: 3, A: 3, T: 1	S: 2, A: 4, T: 2	D: 3, S: 1, A: 1, T: 3
	Other public institutions (3)	A: 2, T: 1	A: 2, T: 1	S: 1, T: 2	A: 1, T: 2
	Other sectors (6)	D: 1, S: 2, A: 2, T: 1	D: 3, A: 1, T: 2	D: 2, S: 1, A: 2, T: 1	D: 2, S: 1, A: 1, T: 2
	Police officer (5)	A: 3, T: 2	D: 1, S: 1, A: 2, T: 1	S: 2, A: 2, T: 1	D: 1, A: 2, T: 2
	Military officer (2)	A: 1, T: 1	D: 1, S: 1	S: 2	S: 2
	Total (85)	D: 23, S: 19, A: 19, T: 24	D: 7, S: 10, A: 36, T: 32	D: 4, S: 17, A: 38, T: 26	D: 11, S: 12, A: 24, T: 38
	Statistical Sign.	,005	,034	,133	,121
Pearson Chi-square	49,406	41,801	35,224	35,754	

	Variables	Would you choose this department if you had a choice backwards again?	Would you recommend the department to others?	Would you consider getting a postgraduate education in the department?
Gender	Female (38)	D: 9, S: 7, A: 9, T: 13	D: 11, S: 12, A: 7, T: 8	D: 5, S: 5, A: 9, T: 19
	Male (47)	D: 10, S: 7, A: 16, T: 14	D: 16, S: 5, A: 19, T: 7	D: 4, S: 9, A: 13, T: 21
	Total (85)	D: 19, S: 14, A: 25, T: 27	D: 27, S: 17, A: 26, T: 15	D: 9, S: 14, A: 22, T: 40
	Statistical Sign.	,775	,036	,767
	Pearson Chi-square	1,109	8,556	1,141
Working in a job while being student	Having a job (44)	D: 10, S: 7, A: 12, T: 15	D: 13, S: 7, A: 16, T: 8	D: 5, S: 5, A: 12, T: 22
	Having no job (41)	D: 9, S: 7, A: 13, T: 12	D: 14, S: 10, A: 10, T: 7	D: 4, S: 9, A: 10, T: 18
	Total (85)	D: 19, S: 14, A: 25, T: 27	D: 27, S: 17, A: 26, T: 15	D: 9, S: 14, A: 22, T: 40
	Statistical Sign.	,956	,590	,630
	Pearson Chi-square	,320	1,914	1,732
Graduation year	2016 (25)	D: 9, S: 6, A: 3, T: 7	D: 11, S: 5, A: 6, T: 3	D: 3, S: 3, A: 9, T: 10
	2017 (12)	D: 1, S: 1, A: 4, T: 6	D: 1, S: 4, A: 4, T: 3	S: 2, A: 2, T: 8
	2018 (22)	D: 5, S: 1, A: 9, T: 7	D: 6, S: 6, A: 6, T: 4	D: 2, S: 5, A: 3, T: 12
	2019 (26)	D: 4, S: 6, A: 9, T: 7	D: 9, S: 2, A: 10, T: 5	D: 4, S: 4, A: 8, T: 10
	Total (85)	D: 19, S: 14, A: 25, T: 27	D: 27, S: 17, A: 26, T: 15	D: 9, S: 14, A: 22, T: 40
Statistical Sign.	,160	,444	,576	
Pearson Chi-square	13,063	8,927	7,587	
	Variables	Would you choose this department if you had a choice backwards again?	Would you recommend the department to others?	Would you consider getting a postgraduate education in the department?
Working sector	Having no job (37)	D: 8, S: 8, A: 10, T: 11	D: 13, S: 7, A: 11, T: 6	D: 6, S: 7, A: 7, T: 17
	Teacher in a public school (9)	A: 3, T: 6	D: 3, S: 2, A: 2, T: 2	A: 3, T: 6
	Teacher in a private school (7)	D: 2, S: 1, A: 3, T: 1	D: 1, S: 2, A: 4	S: 2, A: 1, T: 4
	Sub-teacher in a public school (7)	D: 1, S: 2, T: 4	D: 3, S: 2, T: 2	A: 4, T: 3
	Academic staff (1)	T: 1	S: 1	T: 1
	IT sector (8)	D: 2, S: 2, A: 3, T: 1	D: 3, A: 4, T: 1	S: 3, A: 2, T: 3
	Other public institutions (3)	D: 1, T: 2	D: 1, A: 1, T: 1	A: 1, T: 2
	Other sectors (6)	D: 3, A: 3	D: 2, S: 2, A: 2	D: 2, S: 1, A: 1, T: 2
	Police officer (5)	S: 1, A: 3, T: 1	S: 1, A: 2, T: 2	D: 1, S: 1, A: 2, T: 1
	Military officer (2)	D: 2	D: 1, T: 1	A: 1, T: 1
	Total (85)	D: 19, S: 14, A: 25, T: 27	D: 27, S: 17, A: 26, T: 15	D: 9, S: 14, A: 22, T: 40
	Statistical Sign.	,131	,714	,678
	Pearson Chi-square	35,316	22,454	23,131

Abbreviations D: Disagree, S: Somewhat agree, A: Agree, T: Strongly agree

Looking at the views of the graduates regarding the profession, it was seen that 17 people commented positively (high), seven people commented negatively (low), and eight people stated neutral. In terms of gender, although there is no conspicuous frequency of positive opinions among female, fewer have negative views. It was found that males made comments revealed more positive views. In addition, although the positive views are not more intense among the graduates who have no job, the ones with negative views are less. Views of some graduates who gave positive comments;

“I think that ICT teaching is a satisfying profession because there are more job opportunities than other branches of teachers. I think it is one step ahead of other teacher branches and most professions.”

When the professional satisfaction rates of the graduates are examined, it is seen that an exact

result cannot be reached. Looking at the frequencies, 24 people said low, 10 people said middle, 26 people high, and three people stated that they were undecided about satisfaction levels. It is possible to say that this situation is similar in terms of related variables (gender, etc.). Views of some graduates stating that their professional satisfaction rate is low;

“Low; specific uncertainty of Public Personnel Selection Exam; paid (sub-teacher), contractual, and permanent unreasonableness; future concerns..”

“I think ICT teachers don't have enough physical facilities. During my internship on teaching and business life, I saw that the existing ICT classes, even in western provinces, were converted into traditional classes. You will teach computer technology, but you will do this without using a computer. It is not possible to increase this score by repairing printers in the teachers' room or working in the administrative staff just because they know Word-Excel, without seeing that the language of the future is coding and robotics, which is a product of this, not in words, but gradually at every level (compulsory) and infrastructure has been created in the lesson programs.”

“Few to me. The curriculum is not clear, the content is not clear, the environments to be trained are insufficient, the perspective of the ICT teacher and the lesson is bad. In fact, it is such a promising department that it is somehow obstructed. While the coding course is planned to be included in the curriculum, it is planned that the people who will give this training will take a course and enter the course.”

Views of graduates stated that the professional satisfaction rate is high;

“The education part satisfies me. Although I am a software developer, the instructor part makes me happy to teach what I know to someone..”

“We maintain a professional life intertwined with the developing and renewed technology. Thus, we can experience the firsts in introducing and using new products that will make our lives easier. This is because we are always in a sense of exploration and wonder.”

“I chose this profession fondly and it satisfies me. I can describe it as building the future, dancing with the future, blinking with the innovations, it satisfies and pleases me as a person who always want to learn new things because informatics is dynamic away from stasis.”

In the context of the opportunities given to the profession, seven of the eight people stated negative opinions; while there is a similar frequency in terms of gender, it has been revealed that especially the teachers working in the public schools share this view. Views of some graduates who made negative comments regarding the opportunities given to the profession;

“Lack of physical facilities for teachers. During my internship and business life, I saw that the existing ICT classes, even in western provinces, were converted into traditional classes. You will teach computer technology but you will do this without using a computer.”

“It cannot be said that I get satisfaction due to the conditions of the region where I work.” While it was seen that negative views prevailed in the context of professional importance, it was noteworthy that there was no positive view. 12 of the graduates stated negative and two neutral views. While there was equality in terms of gender variables, it was determined that especially those who had no job had negative views. Views of some graduates who negatively commented on professional importance and currently have no job.”

“In today's technology age, where its place in our lives is so great, the more conscious and accurate, reliable technical users and teaches an ICT teacher is, the future generations will be a society that benefits from this technology positively.”

“Keeping up with our times and developing new ideas with ICT is a special satisfactory situation in itself.”

When the comments on being a graduate of the department were examined, it was seen that there was no striking difference. Four people made positive, four negative and three neutral comments. While there is no significant difference of views in terms of gender; it was observed that three people from females stated negative opinions and three people from males stated positive views. Views of graduate females who made negative comments;

Table 4. Graduates' views on the satisfaction level of being an IT teacher

Criteria	Satisfaction rate	Recognized possibilities	Professional importance	Assignment statuses	Prospect for the future	Teaching processes	About the profession	About being a graduate of the department
Female (38)	L: 10, M: 7, H: 7, U:2	L: 3, N: 1	L: 7, N: 2	L: 6		A: 2, L: 1, N: 1	A: 6, L: 3, N: 7	A: 1, L: 3, N: 1
Male (47)	L: 14, M: 3, H: 19, U:1	L: 4	L: 5	L: 6, N: 1	L: 2	A: 6, L: 5	A: 11, L: 4, N: 1	A: 3, L: 1, N: 2
Tutor-Teacher in public schools (9)	L:3, M: 2, H: 2	L: 4, N: 1	L: 1			A: 1	A: 1, N: 2	
Tutor-Teacher in private schools (7)	H: 3		L: 2, N: 1	L: 1		A:2, N: 1	A:1, N: 2	N: 1
Tutor-Sub-teacher in a public school (7)	L: 2, M: 1, H: 1		L: 3, N: 1				N: 1	
Tutor-Academician (1)	L: 1	L: 1	L: 1			L: 1		
IT sector (8)	L: 4, H: 3, U: 1	L: 1	L: 1	L: 2	L: 1	A:1, L: 2	A:2, L: 2	A: 2
Police officer (5)	M:1, H: 2						A: 2	N: 2
Military officer (2)	H: 1						A: 1	L: 1
Other public institution (3)	L: 1, M: 1, H: 1			L: 1			A:2, L: 1	
Other sector (6)	L: 2, H: 3			L: 2		L: 1	A:2, L: 2	L: 1
Having no job (37)	L: 11, M: 5, H: 10, U: 2	L: 1	L: 4	L: 6, N: 1	L: 1	A: 5, L: 2	A: 6, L: 2, N: 5	A: 2, L: 2
Total (85)	L: 24, M: 10, H: 26, U:3	L: 7, N: 1	L: 12, N: 2	L: 12, N: 1	L: 2	A: 8, L: 6, N: 1	A: 17, L: 7, N: 8	A: 4, L: 4, N: 3
Abbreviations	L: Low, M: Middle, H: High, U: Undecided, A: Agree, D: Disagree, N: Neutral							

“Insufficient education level causes limitation in this area.”

“I think the education I received is behind the developing technology.”

“It would be good if the competent authorities were mobilized to provide employment for graduates. But nobody is doing anything. It was like that when we were studying, and as I noticed nothing has been changed after I graduated.”

Views of graduate males who gave positive comments;

“I can say that the satisfaction level of graduating from ICT teaching is high. When you graduate from this department, you can really be 1-0 ahead in the business field.”

“Having knowledge in many areas such as web design, graphics, network, software, hardware. Entering the business life by developing in any of these areas in the private sector. We may not be an engineer but we could be a Swiss army knife.”

“The department is important because of today is a technology age.”

Graduates' Views About How Others See ICT Teachers

When the departmental graduate perceptions of others' views on ICT teaching were analyzed, it was found that there were 11 codes. These are in order; the value ratio for the profession is the value in the eyes of the department graduates, the value in the eyes of others, the status of assignment, technical support, the view of the school staff, the parents' view, the overview of the profession, seeing as a game lesson, the value of the lesson / branch and the value of teaching. The frequencies of the graduates who made comments on the codes determined in Table 5 in the context of different levels are given.

When the graduate opinions about the ratio of ICT teaching in the context of professional value were examined, it was noteworthy that most of them stated that this value was low. 65 people stated that the value others give to ICT teaching is low; 8 people stated their views as middle and four people high. In terms of gender, it has been observed that females and mans agree to a high rate. In addition, it is important that this view is emphasized in different professions, especially among teachers and those who have no job. Views of some graduates who made negative comments;

“People’s view about ICT teaching is not as valuable as other branches. When it comes to ICT teaching, they simplify our profession by being prejudiced without knowing any details of what we teach to students.”

“Because our society cares about the lessons that require success in exams, ICT teachers today do not see the necessary value.”

“Day by day it becomes a profession that is considered not to be needed because there is no child that doesn’t know to use computer.”

Considering the personal views of the graduates of the department on their professional values, it can be said that there is no significant difference. Two of the graduates stated positive (high), three negative (low) and six neutral views. Views of some graduates;

“An ICT teacher is also a software developer, a person who knows everything about hardware and can solve problems in all technological devices.”

“..During the appointment process, the quota it deserves is not given. That's why this department is not among the options.”

“Assignment is so hard. The departments are closing. Although there is an increasing interest in robotic coding from programming languages very close to us, I think we will not even be needed.”

Most of the graduates expressed a negative view about the value of ICT teaching according to other people’s view. Considering the frequencies, 70 people expressed it as negative (low), nine people as positive (high) and three people as neutral. Negative views revealed similar frequencies in the context of gender. As looking at different occupational sectors, negative views were noted in almost all of them, especially teachers and graduates who did not work. Some graduates with negative views;

“Just as there had been a revolution in the industrial revolution, we are in the age of technology today and a revolution is taking place and our people are closing their eyes to innovations today as they did in the past.”

“The fact that the computer lesson is only one lesson per week in 5th and 6th grade causes it to be seen as an insignificant lesson in other people’s mind.”

“Low value because people find computer lessons unnecessary.”

Graduates are of the view that other people's perspectives on this profession are negative in terms of being appointed. Accordingly, seven people expressed negative views. Views of some alumni who made negative comments;

“Not very valuable for those who know their appointment is low.”

“When someone ask me where I work in, I say we haven't been assigned yet and that's why I'm considered worthless.”

“It is seen as difficult to assign.”

Some of the graduates stated that others expect technical support from ICT teachers. In this context, there are 32 people who stated that this expectation was negative and one person stated that it was positive. The negative views of the graduates in terms of gender are similar. It was noteworthy that especially teachers, employees in the IT sector and graduates who had no job had this view. Opinions of some graduates who reported negative comments on this subject;

“People treat us as technical service, which makes me feel worthless.”

“People see us as the smart board repairer, the system adjuster for the special day, the person responsible for the e-school operations, the social media manager.”

“The ICT teacher is generally seen as the person who can solve all kinds of problems related to the computer. It is debatable to say that we are in a good place for value.”

Five negative and one positive views were stated in the context of school staff's perspectives on ICT teachers. It was noteworthy that four of these views were made by males. Views of some graduates who made negative comments;

“Due to the age that we live in, other teachers think the branch is important. But managers are not aware of this.”

“Since our branch is connected with technology, no importance is given at school, although people say that it is actually very important in their speech.”

“They see the management as someone who will format and build the school site.”

10 of the graduates, who expressed views in the context of the parents' perspective of ICT teachers, stated negative and two positive views. It was observed that seven of the graduates who made these views were males. Views of some graduates who made negative comments;

“The management see us as someone who will format and build the school site.”

“Since even parents and students see the lesson only as a game, it is understood that the lesson has no value in the people’s perspective.”

“The lessons with questions in the exams are considered more important by the parents.”

In the context of other people's general views of ICT teachers, 11 people stated negative and 1 positive and neutral views. While there was a similarity in negative views in terms of gender, it was observed that especially graduates having no job expressed this view. Views of some graduates who made negative comments;

“In the environment I know, our department doesn't have much value.”

“They say there shouldn’t be a teacher for computer.”

“Being an ICT teacher requires knowing everything by the people around us.”

Graduates have only stated negative views about the perception of ICT course as a game lesson. There are five graduates with this view and there is no difference in terms of gender. Most of the graduates have negative views about the course and the branch in terms of the value they think others show. Accordingly, 32 people stated negative, eight positive and four neutral views. Similarity was observed in terms of gender. In the context of expressing negative views, it was found that especially teachers and unemployed graduates expressed negative views. Views of some graduates who made negative comments;

“In terms of lesson, it is seen as a lesson that students play and have fun rather than being seen as an educational lesson in terms of content.”

“Unfortunately, while being considered as a game teacher, we are expected to be aware of almost every subject about technology. While it is seen as a simple field especially for parents, on the other hand, the high expectation creates contradiction.”

“It feels like they think of being the teacher of a lesson where the game will be played, which parents think of “free time.”

When the perceptions about the perception of the teaching profession in general were examined, it was seen that four people commented negatively and two people made neutral comments. In expressing negative views, males were noted in terms of gender. Opinions of some graduates who made negative comments;

“ICT teaching, like most teacher branches, is not a profession that is highly popular and desired by other people. Because the deficits created by today's education system have generally lost the respect of the teaching profession. This shows how much we value education, science and technology. ”

“Making Money easy.. In our country, music, painting and so on. Teachers are viewed in this way, as in other branches of teaching.”

“Unfortunately I think teaching is not generally respected.”

The Place and Importance of ICT Teaching in National Education

When the comments of the graduates of the department about the place and importance of ICT teaching in National Education are analyzed, it was found that there are six codes. These are in order; the place and importance of the profession, the possibilities afforded, assignment status, view of different branches, programming / coding mastery and teaching processes. The frequencies of the graduates who made comments on the codes determined in Table 6 in the context of different levels are given.

Graduates mostly expressed negative views regarding the place and importance of ICT teaching. 47 people stated negative, five positive and five neutral views. As it is seen that negative views are intense in the context of gender, it has been observed that negative views prevail in different sectors, especially teachers. Views of some graduates who made negative comments;

“We didn't have much importance until now, but with the project produce with informatics, our importance has increased a little, but we still do not have enough.”

“I do not think that the Ministry of National Education has only slightly increased our value with the value it attaches to coding in the last few years, on the other hand, although there is an increase, I do not think that this increase is sufficient.”

“The teaching field, which is expected to reveal the love of programming within the student, but I think it is not adequately supported by the Ministry of National Education. Even though it has a place in the curriculum, there are problems with implementation.”

Table 5. Graduates' views about how others see IT teachers

Criteria	Rate	Their value in their own views	Their value in others views	Assignment status	Technical support	School staff views	Students' parents views	General views	Being seen as a game lesson	Value of the lesson/department	The value of teacher
Female (38)	L: 30, M: 3, Y: 3	A: 1, L: 2, N: 1	A: 4, L: 33	L: 2	A: 1, L: 15	L: 1	L: 3	A: 1, L: 6	L: 2	A: 3, L: 15	L: 1, N: 1
Male (47)	L: 35, M: 5, Y: 1	A: 1, L: 1, N: 5	A: 5, L: 37, N: 3	L: 5	L: 17	A: 1, L: 4	A: 2, L: 7	L: 5, N: 1	L: 3	A: 5, L: 17, N: 4	L: 3, N: 1
Tutor-Teacher in public schools (9)	L: 6, M: 1, Y: 1	N: 2	A: 2, L: 7		L: 4	A: 1, L: 1	A: 1, L: 1	A: 1, N: 1	L: 1	L: 5	
Tutor-Teacher in private schools (7)	L: 7		L: 7		L: 2	L: 1	L: 2	L: 2	L: 1	L: 5	L: 1
Tutor-Sub-teacher in a public school (7)	L: 7		L: 7	L: 1	L: 4				L: 1	L: 3	
Tutor-Academicians (1)		N: 1								A: 1, N: 1	
IT sector (8)	L: 7, Y: 1	N: 1	A: 1, L: 6		L: 6	L: 1	A: 1, L: 2	L: 1	L: 2	A: 1, L: 1, N: 1	
Police officer (5)	L: 3, M: 1	N: 1	A: 1, L: 4	L: 1	L: 1		L: 2			A: 1	
Military officer (2)	L: 2		L: 2	L: 1			L: 1			L: 1	
Other public institution (3)	L: 2	A: 1, L: 1	L: 1		L: 1			L: 1		A: 1, L: 2	
Other sector (6)	L: 5, N: 1	N: 1	L: 5	L: 1	L: 2	L: 1	L: 1	L: 1		L: 2	N: 1
Having no job (37)	L: 26, M: 6, Y: 2	A: 1, L: 2	A: 5, L: 31, N: 3	L: 3	A: 1, L: 12	L: 1	L: 1	L: 6		A: 4, L: 13, N: 2	L: 3, N: 1
Total (85)	L: 65, M: 8, Y: 4	A: 2, L: 3, N: 6	A: 9, L: 70, N: 3	L: 7	A: 1, L: 32	A: 1, L: 5	A: 2, L: 10	A: 1, L: 11, N: 1	L: 5	A: 8, L: 32, N: 4	L: 4, N: 2

Abbreviations L: Low, M: Middle, H: High, U: Undecided, A: Agree, D: Disagree, N: Neutral

It is noteworthy that the graduates stated only 18 negative views regarding the opportunities provided to ICT teachers. While there is a similarity on the basis of frequency in terms of gender, it has been determined that those who teach in public and private have negative views. Views of some graduates who made negative comments;

“The time allocated for our department in education is insufficient and the environment of the lesson is unfortunately not suitable.”

“Lack of ICT classes, which are the most important needs, puts teachers in a difficult situation.”

“Based on my observations, I think that our teachers in schools lack knowledge about how to use computers or how to use computers in terms of materials. Our teachers are trained on this subject, but I don't think this is enough. Most of our high school graduates can not even correctly use Word program. All this reveals the lack of ICT teachers or lessons.”

It has been determined that the graduates have only negative views in the context of appointment and 10 people have made this comment. It was noteworthy that the frequencies were

close to each other in terms of gender, especially those who had no job. Opinions of some graduates who made negative comments;

“There are not enough IT teachers in schools. Ministry of National Education should increase this number.”

“We only attend the classes of certain classes, which causes us to be less appointed.”

“Not enough appointments.”

Graduates stated that they have negative views about different branches. In this context, only eight people gave negative views. It was noteworthy that the frequencies were close to each other in terms of gender, especially those who had no job. In the views on programming and coding, five people stated negative and one positive view. In the context of gender, the frequencies are close to each other, especially the fact that those who have no job, have made this comment. Positive and negative views of some graduates;

Table 6. Graduates' views on the place and importance of ICT teaching in National Education

Criteria	Place and importance	Recognized possibilities	Assignment status	About other departments	Programming and coding	Teaching processes
Female (38)	A: 4, D: 20, N: 1	D: 8	D: 6	D: 5	D: 3	D: 9
Male (47)	A: 1, D: 27, N: 4	D: 10	D: 4	D: 3	A: 1, D: 2	A: 2, D: 4
Tutor-Teacher in public schools (9)	D: 6, N: 1	D: 4		D: 1		D: 1
Tutor-Teacher in private schools (7)	D: 5	D: 2	D: 1	D: 1		A: 2, D: 2
Tutor-Sub-teacher in a public school (7)	A: 2, D: 4	D: 1			D: 1	D: 1
Tutor-Academician (1)	N: 1					
IT sector (8)	A: 1, D: 5, N: 1	D: 2			A: 1	
Police officer (5)	D: 5	D: 1	D: 2	D: 1		D: 1
Military officer (2)	D: 2					
Other public institution (3)	D: 1	D: 1	D: 1			D: 1
Other sector (6)	D: 6	D: 1				
Having no job (37)	A: 2, D: 13, N: 2	D: 6	D: 6	D: 5	D: 4	D: 7
Total (85)	A: 5, D: 47, N: 5	D: 18	D: 10	D: 8	A: 1, D: 5	A: 2, D: 13

Abbreviations A: Agree, D: Disagree, N: Neutral

“As of last year, they started piloting in certain provinces with many areas such as robotic coding, mobile coding, and 3D design. Pilot studies are continuing in 81 provinces now. I believe that it will be a very leading lesson in the next two years.”

“There are other branch teachers who consider ICT lessons unnecessary.”

“I think other branch teachers have also passed this lesson.”

“Coding training should be given, but if the classroom teacher gives this training, our department will not matter.”

It was observed that negative views about teaching processes were in majority. Accordingly, 13 people stated negative views and two people gave positive views. In terms of gender, it can be said that negative views of females are relatively high. Additionally, it was observed that unemployed graduates also expressed negative views. Views of some graduates who made negative comments;

“Coding, animation, etc. There is a training program where the use of trainings cannot be provided and even teachers from other branches can teach. Since our students at the branch level are well versed in these subjects, the lessons do not listen carefully and do not participate.”

“While the foundation of the algorithm should be established by teaching with games from the first grade, we are very far from this. Even students who have reached the level of perception are not given enough hours of lessons and opportunities to develop children are not provided.”

“We call it the age of technology, but the course is still considered as an elective.”

Benefits of Being a Department Graduate

When the comments of the graduates on the benefits of being a graduate of this department are analyzed, it was found that there are five codes. These are in order; professional benefit, competence, interdisciplinary transition, diploma ownership and developmental benefit. The frequencies of the comments made by the graduates are given in Table 7 in the context of the determined codes.

In the context of the benefits of being a graduate of the department, it was found that the most competence (32 people), then the professional benefit (29 people) and the developmental benefit (11 people) came to the fore. It can be said that men have more positive opinions in terms of developmental benefit and professional benefit. On the other hand, teachers in a public school mostly agree on professional benefits and competencies. It was observed that teachers in a private schools and sub-teachers in a public schools also expressed positive opinions in terms of competency. In addition, it was determined that all of the police officers expressed positive opinions in terms of professional benefits. The views of some graduates stating that it is useful in the context of competence;

“I am conscious of the development and benefits of computer technology. The fact that we have received both hardware and software training at the university allows us to see our way forward, albeit a little.”

“I see it as a privilege for myself to have knowledge about the IT sector.”

“The basic trainings we received during the training process encouraged us to improve ourselves and by putting them on top of those trainings, they enable us to reach a better point than the basics.”

“As a graduate of CEIT, I think that the requirement to constantly improve myself and to follow technology closely makes me stay at the forefront as against ordinary person. As an example, sometimes I can understand the cause of system errors in the institution we work with, even by looking at the error codes, and I can resolve it on my own. But people whose software and computer knowledge are only at the level of use, in this case, they just look at the error code on the screen. Examples like this can be given. It is a privilege to be a member of CEIT.”

“We are aware of many terminology in terms of IT. Technology, artificial intelligence, machine learning, etc. we are familiar with concepts and can predict many developments. Its most important contribution is to instill practicality. I had the chance to observe this many times and as graduates of the department, we have a more practical and solution-oriented approach compared to many branches. I think it's about being aware of structures like technology, algorithms.”

The views of some graduates stating that it is useful in the context of professional benefit;

“We are the teacher group that is wanted and needed in my opinion. We can solve many problems and become teachers whose lessons are expected when given the right.”

“I liked teaching something thanks to the episode. I learned the happiness of being able to share what you know with people.”

“I think we are more advantageous than other professions in finding a job, we are more likely to find a job if we renew and keep ourselves up-to-date with constantly changing and developing technology.”

“Job opportunities exist for candidates who improve themselves. Because you are intertwined with technology, you follow the era closely.”

“Rather than focusing on a single point as in many teaching branches, different branches can be selected and focused on those branches. Network security, software, hardware, network systems, the multitude of different fields offer us a lot of job opportunities in the private sector.”

The views of some graduates stating that it is useful in the context of developmental benefit;

“Cognitive contributions made me pay attention to the importance of education in my life.”

“I think the biggest benefit of being an IT graduate right now is for my personal development.”

“The advantage of graduating from this department is that you are ready for life as individuals who love to research, pursue innovation and never get tired of learning.”

“Teaching that the ability of daily problem solving increases, which solution can be reached with looking at the possibilities.”

“Finding a solution to the problem in every situation as we improve ourselves in terms of skills such as creative thinking and problem solving.”

The views of some graduates stating that it is useful in the context of interdisciplinary transition;

“Having gained familiarity with all other fields as an interdisciplinary branch.”

“While I was doing my master's degree in educational sciences, it made it easier for me to learn some subjects without feeling foreign to the lessons as I learned some subjects from the undergraduate period.”

Table 7. Graduates' views on the benefits of being a department graduate

Criteria	Professional benefit	Competence	Interdisciplinary	Having diploma	Developmental benefit
Female (38)	11	16		2	3
Male (47)	18	16	5	4	8
Tutor-Teacher in public schools (9)	6	6			
Tutor-Teacher in private schools (7)	1	3			1
Tutor-Sub-teacher in a public school (7)		4			
Tutor-Academician (1)	1				
IT sector (8)	3	2	4		3
Police officer (5)	5			1	
Military officer (2)	1			1	
Other public institution (3)		1			1
Other sector (6)	1			1	
Having no job (37)	11	16	1	3	6
Total (85)	29	32	5	6	11

“The combination of technology and education is one of the situations that improves me.”

The views of some graduates stating that it is useful in the context of diploma ownership; *“As a 4-year university graduate, I can apply as a police officer, and my other friends can apply to be an military officer..”*

“I can say that I graduated undergraduate.”

“Having a diploma regarding we know technology..”

Basic Difficulties Experienced as a Department Graduate

When the comments made by the graduates about the difficulties of being a graduate of this department are analyzed, it was found that there are six codes. These are in order; insufficiency, unemployment, inexperience, undergraduate education, technical knowledge and value shown. The frequencies of the comments made by the graduates are given in Table 8 in the context of the determined codes.

Considering the opinions of the graduates of the department in the context of the difficulty, it was determined that unemployment was the most prominent (57 people). The next lines are lack of value and importance (14 people), insufficiency of undergraduate education (10 people) and general inadequacy (9 people). Looking at the context of unemployment, it can be said that in terms of gender, men express relatively more negative views. Although those working in different sectors also expressed a negative opinion, graduates who did not work as expected mostly emphasized this situation. Men stated more negative opinions about professional value and importance than women. In terms of technical knowledge and general insufficiency, it can be said that women express more negative opinions than men. Views of some graduates stated in the context of unemployment;

“With the grades I got in all the PPSE exams I took, I could at least be appointed as a classroom teacher every year. The biggest problem of our IT teachers is that the department's intake is low. Many qualified teachers cannot start their profession for this reason.”

“I am worried because the number of assignment is too few.”

“The main problem I have as a graduate of the department is the high points of teacher assignments and the difficulty of finding a job in this field in the private sector.”

“The main problem is unemployment. Most private institutions require several years of work experience, offering very small salaries to those who do not.”

“I am having trouble with the job description. Because some businesses expect high-level skills in both website and computer knowledge. There are also requests outside of our field. If we want to be appointed to the state with PPSE, we are stuck with a small quota.”

“The job area in the private sector is very limited and I think that most graduates have difficulties in finding a job because appointments are also limited with high points.”

Views of some graduates stated in the context of value and importance;

“After the appointment stage, there are perceives to us negatively with the hardware deficiencies and the lesson in the starting stage. It is as if there are only basic lessons (mathematics, Turkish, science, etc.). Others are unnecessary lessons. It is a little difficult to overcome this situation.”

“It saddens me not to see the expected level of value in the society and the importance of information technologies in public schools not yet known.”

Views of some graduates stated in the context of undergraduate education;

“Our department teachers teach with plans that everyone in this science will be appointed and become a teacher with PPSE. However, most students want to work in different fields in the private sector. Except for friends who developed themselves in their graduation projects, there was no work in terms of graphics or software. Yes, we are educators, but after four years there was no educational work either.”

“Although it is a numerical department, the theoretical courses are heavy..”

Views of some graduates stated in the context of insufficiency;

“Hardware deficiencies, I can say, is a general problem. Many emeralds do not have IT classes. Apart from that, they cannot reach interactive boards or projectors. From my point of view, I am lucky in this regard, at least I am in a very good state of technological equipment, so I have an IT classroom and smart boards, in this case it completely affects the teaching. The only thing I lack and my current efforts, the

impossibilities of robotics, I think to provide this myself and with the support I expect from the environment.”

“When there is a technical problem, sometimes when you cannot solve it, we are ridiculed as if we are professionally incompetent.”

Views of some graduates stated in the context of inexperience;

“While there are many experienced unemployed people, the new graduate has no chance.”

“While working with PPSE, I applied for a job, but all of them require experience.”

Views of some graduates stated in the context of technical knowledge;

“People expect me to know everything about computers ..”

“Being exposed to questions in every field in the technological field ..”

Tablo 8. Graduates' views on the main difficulties they face as a department graduate

Criteria	Insufficiency	Unemployment	Inexperience	Undergraduate education	Technical knowledge	Value-importance
Female (38)	6	24	2	4	5	4
Male (47)	3	33	2	6	1	10
Tutor-Teacher in public schools (9)	3	4		1	2	2
Tutor-Teacher in private schools (7)		2		1		1
Tutor-Sub-teacher in a public school (7)	1	6				1
Tutor-Academician (1)					1	1
IT sector (8)		3		2		3
Police officer (5)	1	3		1		1
Military officer (2)	1	2		1		
Other public institution (3)		2				1
Other sector (6)	1	4		2		
Having no job (37)	2	31	4	2	3	4
Total (85)	9	57	4	10	6	14

Graduate Proposals

When the graduates' suggestions for the department were analyzed, it was found that there were four codes. These are in order; importance / future of information technologies, course / content of information technologies, different job opportunities and teaching. The frequencies of the comments made by the graduates are given in Table 9 in the context of the determined codes.

When the suggestions of the graduates for the department were examined, it was seen that a significant portion of them were for the IT course / content (12 people). After that, it was determined that 10 people made suggestions regarding the importance / future of IT. A remarkable finding is that the majority of the participants of the study did not contribute with the recommendations. Some of the graduates' suggestions mentioned in the context of the IT course;

“Branch lessons should be detailed and should be more in hours.”

“Everything is based on technology in the 21st century. We have to inform and provide support to everyone, young and old, in order to use this consciously and provide guidance.”

“Actually, I think it should start from primary school, not from secondary school. Because when it is started in middle school, it is a bit late.”

“Computer and coding course positively affect students' cognitive intelligence. It increases students' problem-solving skills. Therefore, the lesson time of the computer lesson should be increased and computer lessons should be given at an earlier age.”

“If it is aimed the lessons to integrate to the general life not only within the scope of the course that will be really useful, students who act more consciously and strive until they find the right answer even if they make mistakes with problems can be growed. In this way, it is ensured that they succeed not only in the IT course but also in other courses. Because it is a lesson in which we can use our intelligence most efficiently in general terms, the success of the students will increase thanks to the scope of the lesson.”

“Considering that coding education improves students' metacognitive thinking and problem solving skills, more opportunities should be provided to ICT teachers.”

Tablo 9. Graduates' recommendations

Criteria	ICT importance / future	ICT course / content	Different job opportunities	Teacher
Female (38)	4	5	1	1
Male (47)	6	7	1	1
Tutor-Teacher in public schools (9)	3			
Tutor-Teacher in private schools (7)	1	1	1	
Tutor-Sub-teacher in a public school (7)		1		
Tutor-Academician (1)				
IT sector (8)		1		
Police officer (5)				
Military officer (2)				
Other public institution (3)	1			
Other sector (6)				
Having no job (37)	5	9	1	2
Total (85)	10	12	2	2

Some of the graduates' suggestions mentioned in the context of importance / future of information technologies;

“IT is indispensable in our age. Its place in National Education should be one of the cornerstones. We must shape our country's educational philosophy accordingly.”

“I think that the necessary budget should be directed to this field and these skills should be highlighted for the generating generation.”

“Just as technology has gained a great place everywhere today, this should be the same in schools and the importance given to computer lessons and teachers should be increased. Coding education should be given more importance and students should be questioning and create a concrete product.”

“In an age called the technology age, we have a generation of children consuming technology and consuming it really fast. I believe that we should show this consumption rate in production. A technology production department should be opened in vocational high schools for talented children in this field and science-oriented studies should be carried out.”

Some of the graduates' suggestions mentioned in the context of different job opportunities;

“We are the ones who do not give real value to this department, which is regarded as pure teaching. A study should be carried out on the fields of study of CEIT and students should be encouraged to the open areas that are obviously empty. For example, I am a video editor using educational notions as an education specialist, and while friends who mostly study CEIT will find a job in this field, there are no people. Or let me give an example from my classmate, my friend is an A. Ç.

specialist in the company that produces educational content on robotics, and CEIT graduates are not active enough here.”

*“If you live in a big city, if you do not distinguish job and do not plan a career, you can simply enter companies. Secretary, accounting, social media specialist. I have tried. I recommend new graduates to try social media expertise or digital marketing.”*Some of the graduates' suggestions mentioned in the context of teaching.”

“I think that when an IT teacher sees himself as an expert in the field, he/she thinks it is sufficient. However, in my opinion, if being an expert in the field was sufficient, there would be no need for a formation. An engineer should have been an IT teacher without training. In my opinion, as far as the digital literacy of an ICT teacher should be sufficient; he/she should have teaching knowledge, experience and competence as much as a classroom teacher.”

“An IT teacher must constantly research, improve herself and keep up with technology.”

Discussion, Conclusion and Suggestions

When the general views of the graduates were examined, it was found that both males in terms of gender and graduates who had worked while studying undergraduate had a more positive view of working in a different profession other than ICT teaching. It has been determined that those who did not work while studying at undergraduate degree, have a more positive view of being a teacher. It was observed that 2019 graduates expressed a more positive view of working in a different profession, and 2016 and 2018 graduates of becoming teachers. In their study, Tüfekci and Kocabatmaz (2015) suggested that the students and graduates of the department should also examine their desire to work in different professions. In this context, when the current research is examined, it is seen that especially those who have worked in different professions during their undergraduate education and new graduates prefer different professions. It can be said that the decrease in teacher appointments has an effect on these preferences. It is noteworthy that those who have tried their luck in another profession prefer to turn to different professions based on their experiences. Considering the effect of education received in the department on professional preferences, it was found that there is a significant difference in favor of those who are not currently working in the context of the sectors studied. It is a noteworthy finding that those who did not work while studying or after graduation chose to teaching in terms of professional preferences. Whether these graduates made these choices because they did not have any other experience or because of their teaching ideals should be revealed more clearly in further studies. In terms of recommending the department to others, it was determined that there is a significant difference in favor of men. Men both think positively about working in different professions and recommend this department to others; possibly due to the opportunities the field provided outside of teaching.

The opinions of the graduates on the satisfaction levels of ICT teaching were analyzed. In this context, a general opinion could not be reached due to the large number of graduates who expressed positive and negative opinions. It has been determined that there are negative opinions about the recognized possibilities to the profession, especially teachers working in the public sector. Similar results were obtained in different studies, and it was revealed that teacher candidates and graduates expressed negative opinions -especially because of their perceptions towards them- (Demirli, Kerimgil & Donmuş, 2012; Dursun & Saracaloğlu, 2016). As expected, especially the unemployed graduates have negative views in terms of their appointment status. It has been observed that there are many positive comments among the graduates who are currently unemployed in terms of their ability to manage teaching processes. In some studies that support this result, it emphasizes that the students of the department see themselves as sufficient in terms of teaching methods, strategies and techniques (Demirli, Kerimgil & Donmuş, 2012; Tüfekci & Kocabatmaz, 2015; Önal, 2018). In the current study, the fact that the graduates who do not work especially expressed this situation may be an indication that they ideally tended to be teachers. It has been determined that most of the graduates have a positive opinion regarding the profession. In addition, it has been determined that both graduates who

are not currently employed and men express more positive opinions about the profession. Tüfekçi and Kocabatmaz (2015) also reached a similar result for the students of the department. Besides all these; Dursun, Çuhadar, and Tanyeri (2014) mentioned that similar negative views may be related to the existing self-esteem of students and graduates. In this context, they emphasized that various internal and external factors should be taken into account and that people with high self-esteem feel less anxiety. Based on all these comments, this study, in which the possible reasons for the anxiety of the students and graduates of the department are revealed, will shed light on future studies.

The perspectives of the graduates and their comments on ICT teachers through the eyes of others were analyzed. Most of the graduates stated that this value was low. In the context of different variables (gender and graduation year), it was observed that the majority of graduates agreed, and in terms of profession, teachers and unemployed graduates made negative comments. Regarding appointments, they stated that others viewed them negatively. In addition to these, the graduates stated that the others expected a significant amount of technical support from ICT teachers. It was noteworthy that especially teachers, employees in the informatics sector and graduates who did not work had this view. They stated that school staff and parents also view ICT teachers negatively. Especially these two views were put forward by male graduates. It has been observed that especially the unemployed graduates expressed their opinions in the context of the others' negative views to the graduates. In addition, it was stated that the lesson was seen as a game lesson, and there were negative opinions about the lesson and the branch. It was observed that especially teachers and graduates who did not work expressed negative opinions about the course and the branch. Similar results have been obtained in other studies; it was mentioned that especially the branch is elective and seen as a technical staff. It was emphasized that it is seen negatively in the context of students, administrators, parents and other teachers and these views continue in the context of being an elective course (Dursun & Saracaloğlu, 2016). Although Arıkan (2009) states that the department teachers are accepted as competent in their fields; it is seen that existing external factors have an effect on negative perceptions. So much so that it can be said that according to the statement of Dursun, Çuhadar and Tanyeri (2014), they fell into despair extremely.

Graduates mostly commented negatively on the place and importance of ICT teaching in National Education. It has been observed that notably teachers and they working in different sectors agree with this view. In the context of the recognized possibilities to ICT teachers, it was determined that graduates working in public and private teaching had negative views. Similarly, Demirli, Kerimgil, and Donmuş (2012) reached similar results in their study and stated that ICT teachers had negative views about the profession, and they were particularly uncomfortable with the perception of ICT teachers as technical staff. In a study conducted with ICT pre-service teachers, it was seen that pre-service teachers also had negative views about the current situation of ICT teaching and therefore anxiety about their profession (Dursun, Çuhada ve Tanyeri, 2014). However, in the study conducted by Tüfekçi and Kocabatmaz (2015) with pre-service teachers, the opposite result was found and it was found that ICT pre-service teachers had positive attitudes towards the teaching profession. Therefore, while there may be a differentiation in satisfaction levels among pre-service teachers, it can be stated that they mostly have a negative attitude towards the teaching profession among graduates. In the study, opinions in the context of appointment were also examined, and in this direction, there were negative opinions, especially the unemployed graduates. It has been observed that some non-working graduates have negative views regarding programming and coding. It has been determined that especially female graduates and unemployed graduates have negative views regarding teaching processes.

Considering the situations that graduates stated as the benefit of being a BÖTE graduate, it was determined that these are professional benefits, competence, interdisciplinary transition, diploma ownership and developmental benefit. It has been observed that the graduates expressed their opinions especially in terms of competence and professional. It is also seen that a significant number of graduates expressed their opinions in terms of developmental benefits, that is, they care about this situation. In the study conducted by Önal (2018), it was seen that ICT pre-service teachers stated that the undergraduate education they received improved themselves and that they graduated with sufficient knowledge, especially regarding the teaching profession. Arıkan (2009), who evaluated ICT

pre-service teachers in terms of their field knowledge, stated that ICT pre-service teachers graduated as well-educated, especially on the basis of primary education. One of the important conclusions revealed in this study is that IT graduates, as graduates of this department, emphasize the opportunity to work with different disciplines as a value. Some graduates made comments only in the context of having a bachelor's degree and stated that they can use the diploma in different professions. In relation to this issue, Kurtoğlu Erden and Seferoğlu (2020) conducted a study with BÖTE graduates who work in various professions other than teaching and academicians, and gathered views on how the education they received helped them in this process. At the end of the research, they stated that the BÖTE graduates who participated in the study found themselves quite competent especially in content development, content design, instructional design and visual design, and that they were able to work in these areas. They also stated that they had to improve themselves in software and programming. Although there are exceptions in this direction, it can be stated that the undergraduate education provided is of a quality that will contribute to the ability of ICT teachers to work in both teaching and private sector, and competent individuals can be graduated from the department. However, it is a necessity for people to continue to improve themselves after graduation in order to keep up with the rapid change of technology. It is important for pre-service teachers to have this awareness. Therefore, it can be said that pre-service teachers should be raised as individuals who take their own learning responsibilities.

Considering the situations that the graduates stated as the difficulties of being a CEIT graduate, it was determined that these were inadequacy, unemployment, inexperience, undergraduate education, technical knowledge and low value shown by others. A fairly significant majority stated that the biggest challenge was unemployment. It is noteworthy that the majority of those who have this opinion are men, and it has been observed that the graduates who do not work as expected also share this opinion. Kurtoğlu Erden and Seferoğlu (2015) also examined the opinions of ICT pre-service teachers on their field and stated that the shortage in ICT teacher appointments caused even the ICT pre-service teachers who had not yet graduated to experience a future anxiety of being unemployed. Apart from the unemployment problem, negative opinions were made about lack of value and lack of importance, insufficiency of undergraduate education and inadequacy in general. Male graduates draw attention again compared to female graduates in terms of their views on seen value and underestimation. In terms of technical knowledge and general insufficiency, it can be said that female graduates express more negative opinions than men. In the context of this subject, Dursun and Saracaloğlu (2016) conducted a study in which they examined the competencies of ICT teachers and their opinions about what happened at the point of applying them. At the end of the study, the teachers stated a negative opinion that the undergraduate education they received did not coincide with the tasks they performed after graduation and that they experienced some inadequacies in terms of implementation. In addition, it was stated that the information technologies lesson is not given importance in schools, and that administrators, other teachers, parents and students do not take this lesson seriously. Therefore, it was inevitable that ICT teachers were disturbed by this situation and felt worthless, as in this study.

When the literature is examined, it is seen that there is not enough work done for the graduates of the department. Studies with pre-service teachers are useful in revealing the general scope. However, the studies to be carried out regarding the opinions of the relevant people and their current professional status after graduation will make a significant contribution to the literature and the planning of the department quotas by considering the current country conditions, as a continuation of this study. As examined in this study, the employment status of graduates has been handled and interpreted on a sectoral basis. It is necessary to conduct an in-depth study for different occupational groups, taking into account the relevant findings.

Considering the requirements of the 21st century, Information Technologies and Software course is needed in order for the growing generations to be able to use their relevant thinking skills by performing production and adapt them to daily life problems. In addition, our graduates who are suitable for interdisciplinary work with different branch courses must be active in educational institutions. In this direction, it is a necessity to have at least two Information Technologies and Software course teachers in each school. Because the graduates who have gained the necessary

competencies in the context of interdisciplinary work throughout their undergraduate education, also grow up as individuals who are visionary and follow the developments in the context of educational technologies. Therefore, they have the potential to offer different horizons to other teachers in their institutions and to guide the collaborative work of both of teachers and students.

The importance of programming in the current period contributes to the development of many cognitive skills of students' such as logical reasoning, problem solving, algorithmic thinking, project-based thinking, and computational thinking skills. Generations grown in this way, can produce concrete and abstract products. In this respect, it is very important that the Information Technologies and Software course is given only by competent teachers, that is, graduates of the BÖTE undergraduate program, in terms of the next generation to have the aimed competencies.

One of the advantages of CEIT department graduates is that they can work in different sectors other than teaching. The main reason for this is the contribution of their field courses to them. They can work as a specialist in different institutions either as an instructional designer or as a teaching technologist; they can also find a place in different sectors in terms of software, hardware and design. Therefore, this department not only trains teachers, but also trains experts for numerous sectors. For this reason, the decrease in the department undergraduate quotas may cause a shortage of workforce in the context of experts in the relevant institutions in the future.

As of the end of 2019 and the beginning of 2020, especially in the first half of the year, distance education practices were introduced in educational institutions due to the pandemic, and this period was called "emergency distance education". In this process, the graduates of CEIT played an active role in the use and improvement of the existing physical environments and the effective use of teaching processes from pre-school to higher education. The graduates of the department played an active role not only in public and private education institutions but also in the effective use of remote access and teaching processes in different sectors. Therefore, BÖTE department graduates, who were seen as competent in this context, it was needed them to take more tasks. Although departmental quotas and assignment numbers are decreasing, not only in teaching technologies and computer science teaching; being a required department in many sectors from public to private, it is of significant importance on a national basis.

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