



Investigation of CEIT Undergraduate Program According to Teachers' and Academicians' Views

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Received : 08.05.2023

Accepted : 29.06.2023

<https://doi.org/10.17522/balikesirnef.1294187>

Abstract – This study aims to reveal the effectiveness of the CEIT undergraduate program in line with the views of teachers and academicians. Phenomenology design, one of the qualitative research designs, was used in the study. The study group consisted of 14 individuals selected via multistage sampling. Of the participants, 8 were teachers who graduated from CEIT undergraduate program and 6 were academicians working in the CEIT program. In the study, a semi-structured interview form developed by the researcher was used as the data collection tool. The data obtained in the study were analyzed using the content analysis technique. In the study, both teachers and academics mentioned the computer class problems, insufficient class hours and lack of applied courses during the implementation of the program. Regarding the distribution of the courses in the program, teachers stated that training on current software and field courses should be emphasized; academics stated that the number of field elective courses and the weekly hours of field elective courses should be increased.

Key words: CEIT program, teacher, academician

Corresponding author: Eyüp YÜNKÜL, Balıkesir University. This study was funded by Balıkesir University Scientific Research Projects Unit (2022/045)

Introduction

Innovations in Information Technology (IT) in the 21st century have allowed countries to progress and have a competitive advantage. IT has changed many aspects of our lives. Considering fields such as medicine, tourism, travel management, commerce, law, banking, engineering, and architecture, the impact of IT over the last twenty or twenty-five years has been enormous. The way these fields operate and their organization is very different from the

structures and methods used in the past. These dramatic changes require societies and individuals to adapt to and keep up with innovations. In other words, the digitization of society and individuals has become an undeniable fact and all areas of life have been digitized.

Digital individuals are described as individuals with the knowledge and skills required by the information age. Digital literacy is the ability to consciously and purposefully use digital tools and resources to acquire and use information, analyze and manage information, create new ideas and products, and communicate (Martin, 2005). Digital literacy, which includes skills such as accessing information, using information, critical thinking, and problem-solving in online environments, also means exhibiting ethical behaviors in accordance with social rules. Therefore, it is important to be digitally literate to benefit from the digital world and avoid its harm.

Today, developments in technology also affect the quality of educational institutions. One of the most important roles expected from educational institutions is to raise children as individuals who use technology effectively. In our country, the work of raising digitally literate individuals required by the information age is carried out by Information Technologies Counselor Teachers (ITCTs) who are graduates of the Computer and Instructional Technologies (CEIT) program. Considering the mission they undertake, it can be said that ITCTs perform a very critical task. The establishment purpose of CEIT departments is to train "computer teachers" for primary and secondary education institutions (YÖK [Council of Higher Education], 1998). In other words, it is aimed to train experts who integrate information and communication technologies into educational environments and to bring them into schools. In this direction, teachers have conducted Computer, Software, and Microsoft Office courses in the relevant schools, and can also work as a Formatter teacher/IT Counselor Teacher.

It is observed that there has been a decrease in the quota of Information Technologies (IT) teachers in teacher appointments made by the Ministry of National Education in recent years (Kurtoğlu-Erden & Seferoğlu, 2015). This can be explained by the decrease in the number of compulsory courses in schools affiliated with the Ministry of National Education. In addition, the decrease in the number of appointments has also reduced interest in CEIT undergraduate programs. As a result, it can be said that the success level of the incoming student gradually decreases, which may negatively affect the coursework of the academicians working in the CEIT undergraduate program.

Similar to other departments in education faculties, the curriculum of CEIT departments has been updated and regulations have been made in vocational knowledge, content knowledge,

and general culture courses. Accordingly, new courses have been added, the contents of the courses have changed, and the weekly course numbers have been updated. In the program, vocational knowledge courses have been given more place than other courses (Meşe et al., 2014). In addition, flexibility has been provided with the elective courses in the program. A total of 4 years have passed following this change. In this direction, it is important to determine the views of academicians about the new program implemented in this process. In today's information age, it is inevitable to update the curriculum of CEIT by making various improvements in a dynamic structure (Bardakçı et al., 2017).

In studies, it has been determined that there are problems such as the lack of technical equipment required for the course and teachers having to waste time on technical work in schools within the body of the Ministry of National Education (Perkmen & Dağistanlı, 2012). Accordingly, it is also important to determine the lessons that ICT teachers conduct at schools, the problems they experience in these lessons, and the situations needing to be dealt with. The fact that there are hardly any studies examining the undergraduate CEIT program and addressing the problems experienced by ICT teachers in schools with application areas increases the importance of the study.

When the literature is examined, it is seen that the studies are mostly conducted by taking the opinions of the students. Accordingly, students have considered themselves inadequate in terms of both software and hardware knowledge (Semerci, 2012; Akgün et al., 2020). In addition, it has been shown that students' thoughts on choosing teaching as a profession are also in the foreground (Şahin et al., 2018), and students need vocational guidance services for their career planning (Ünal, 2012). Finally, it has been explained that the courses that novice teachers think will contribute the most to them while they are teaching are vocational knowledge courses (Akgün et al., 2020).

The education that teachers receive at the undergraduate level plays a key role in their professional success (Lautenbach & Heyder, 2019). Positive changes to be made in the teacher training process will minimize the negative effects of the process and content (Biesta et al., 2021). For this reason, identifying the effectiveness of CEIT undergraduate programs has constituted the starting point of this study. In this direction, the study aims to determine the effectiveness of the CEIT undergraduate program according to the views of academicians working in CEIT departments and Information Technologies teachers working in K12 schools. Therefore, it is thought that this study will provide important data in determining the effectiveness of CEIT programs in line with stakeholder views.

For this purpose, answers to the following questions are sought:

1. What are the problems experienced by the participants during the implementation of the CEIT program and what are the solution suggestions?
2. What are the views of the participants about the program meeting the interests and needs of the students?
3. What are the problems experienced by the participants during the teaching process and what are the solution suggestions?
4. What are the views and suggestions of the participants regarding the distribution of the courses in the program?
5. What are the views of the participants about the Teaching Practice course?
6. What are the views of participants about the adequacy of computer classes in their institutions?

Method

Research Design

In this study, we tried to describe the effectiveness of the CEIT program with a qualitative approach based on the views of teachers and academicians. Phenomenology, one of the qualitative research designs, was used in the data collection and interpretation stages. Phenomenology studies focus on how people perceive a phenomenon, how they describe it, how they feel about it, how they judge it, how they remember it, and how they make sense of it (Bogdan & Biklen, 1992; Patton, 2014). Van Mannen (2016) also mentioned that the experiences of individuals in phenomenological studies are both the starting point and the ending point of the study. The views and feelings of teachers and academics who were directly affected by this phenomenon were tried to be described in depth.

Participants

In phenomenological studies, data sources are individuals or groups that experience the phenomenon on which the research focuses and those who can express or reflect this phenomenon (Yıldırım & Şimşek, 2011). Criterion sampling, one of the purposeful sampling methods, was used in the selection of teachers and academicians participating in the research. In the first stage, the criterion that teachers and academicians should work for at least 5 years was adopted. In the second stage, convenience sampling, in which participants are aware of the purpose of the research and participate in the study voluntarily and willingly, and which is used

in appropriate situations in terms of time and cost (Hatch, 2002; Johnson & Christensen, 2004) was preferred. It is very important to present in-depth information about the individuals participating in the study in the convenience sampling method (Johnson & Christensen, 2004). In this study, a total of 14 people were reached, including 8 teachers who graduated from the CEIT program and 6 academicians working in the CEIT program. The seniority was between 12-18 years for the teachers participating in the study and it was between 11-28 years for the academicians.

Data collection

In qualitative research, interviews can be used alone or together with other data collection techniques (Bogdan & Biklen, 1992; Hatch, 2002). The main data collection tool of this study was determined as interviews with people who experienced this phenomenon directly. According to Rubin and Rubin (2005), in-depth interviews can be used in situations where what is wanted to be learned is not answered simply and clearly, individuals' experiences are needed, and answers to the questions asked to individuals are required. In the interviews with the participants during the research process, a semi-structured interview form developed by the researchers by scanning the relevant literature was used. The questions prepared during the determination of the questions were sent to the field experts. As a result of the feedback, some questions were deleted and some questions were merged.

Before the interview, the participants were informed about the purpose of the research and it was stated that their personal information would not be shared with third parties. To adopt the interview form approach during the interview process, the questions were asked in a mixed manner. Each interview lasted between 15-20 minutes on average.

Data Analysis

The data obtained in this study, which aims to determine the effectiveness of the CEIT program in line with the views of teachers and academicians, were analyzed using the content analysis technique. The main themes and codes were identified in the analysis of the semi-structured interviews prepared by the researchers. The interviews that were transcribed during the interview were then transferred to the computer environment, a file was created for each question, and the answers of the participants were read and coded many times. As a result, the main theme, problems, and patterns were determined. The determined themes and patterns were discussed by the researchers, and categories and main themes were reached (Miles & Huberman, 1994).

While developing the semi-structured interview form to ensure validity, a conceptual framework was created by scanning the relevant literature. The results obtained and the codes reached were constantly compared with each other, interpreted and conceptualized, and tried to reveal some patterns that even the participants of the research were not clearly aware of (Yıldırım & Şimşek, 2011). It is thought that obtaining deeply focused data in this way will contribute to the reliability of the study. In the study, it was also tried to increase the credibility of the research with "researcher triangulation" and the percentage of agreement between coders was determined as .90. In the study, the teachers were coded as Teacher 1: T1, and academicians were as Academician 1: A1.

Findings and Discussions

In this section, the answers given by the teachers and academicians to the questions in the interview form were analyzed and presented in line with the purposes of the study.

What are the problems experienced by the participants during the implementation of the CEIT program and what are the solution suggestions?

In the study, the problems experienced by the participants during the implementation of the CEIT program are given in Table 1 and Table 2 while suggestions for the solution of the problems are presented in Table 3 and Table 4.

Table 1 Teachers' views on the problems experienced during the implementation of the program

Theme	Category	Code	(f)
Program	Course	Insufficient class hours	2
		Lack of applied courses	2
	Material	Lack of computer at home	1
		Lack of textbooks	1
		Licensed software	1
	Physical condition	Lack of laboratory	3
		Lack of infrastructure	1
		Lack of hardware	1
		Down-level computers	1
		Crowded classrooms	1

Teachers' views on the problems experienced during the implementation of the CEIT program were gathered under the categories of "course", "material" and "physical condition" under the theme of "program". When the answers for the course category are examined, the

teachers consider the insufficient class hours and the lack of applied courses as problems. When the answers to the material category are examined, it is seen that teachers believe that not having a computer at home, lack of student textbooks, and the supply of licensed applications are the main problems. When the answers to the Physical Condition category are examined, teachers mostly see the lack of laboratories as an important problem.

The views of the teachers regarding the findings are given below.

T4 ... *inability to practice on subjects that require practice due to insufficient class hours.* (Course / Insufficient class hours)

T1 ... *the absence of textbooks causes chaos for students.* (Material / Lack of textbooks)

S2 ... *Crowded classrooms and lack of laboratory are a problem in itself.* (Physical condition / Lack of laboratory - Crowded classrooms)

Table 2 Views of academicians about the problems experienced during the implementation of the CEIT program

Theme	Category	Code	(f)
Program	System	Unpopularity of the department	1
		Outdated curriculum	1
	Course	Excess of elective courses	1
		Insufficient class hours	1
		Lack of applied courses	1

When the views of the academicians about the problems experienced during the implementation of the CEIT program are explored, the answers given by the academicians are clustered under the categories of "system" and "course" within the theme of "program". When the answers for the system category are examined, the academicians believe that the department's not being preferred by students and the curriculum's not being updated as problems. When the answers for the course category are investigated, the academicians consider the excess of elective courses, the insufficient class hours, and the lack of applied courses as the main problems.

The views of the academicians regarding the findings are given below.

A3 ... *However, in general, the biggest challenge for the program was the change in the score type in the university entrance exam in the past. Afterward, potential (successful) students who could choose the department started to prefer other departments.* (System / Unpopularity of department)

A4 ... *Since the curriculum does not comply with the requirements of the era, it does not attract the attention of students, thus making it difficult to implement.* (System / Outdated curriculum)

A5 ... *In the curriculum that started to be implemented in 2018, the number of weekly hours of the courses decreased.* (Course / Insufficient class hours)

Table 3 Views of teachers on the solution to the problems experienced during the implementation of the CEIT program

Category	Code	(f)
Innovation	Software applications should be included	6
	The program should be updated	3
	Hardware / Electronics should be emphasized	2

Teachers' views on the solution to the problems experienced during the implementation of the CEIT program were gathered under the category of "Innovation". When the answers for this category are examined, the teachers consider that software applications should be mostly included in the program as a solution.

The views of the teachers regarding the findings are given below.

T4 ... *I think that coding should be included more in the curriculum.* (Software applications should be included)

T7 ... *It is not necessary to add or delete, it is necessary to develop a new curriculum from the beginning.* (The program should be updated)

Table 4 Views of academicians on the solution to problems experienced during the implementation of the CEIT program

Theme	Category	Code	(f)
Update	Change	Increasing class hours	2
		Changing course periods	1
	Innovation	Adding current practices to the program	1
		Adding new compulsory courses	1

When the views of the academicians on the solution to the problems experienced during the implementation of the CEIT program are investigated, the answers given by the academicians are collected under the categories of "change" and "innovation" within the theme of "update". When the answers to the change category are examined, academicians consider an increase in the course hours and changing the course periods as solutions. When the answers to

the innovation category are explored, the academicians propose the addition of current practices to the program and the addition of new compulsory courses as solutions.

The views of the academicians regarding the findings are given below.

A1 ... *In the CEIT program, it would be better if the Programming Teaching Approaches course in the first-year spring semester were taken to the third-year fall semester, and the Informatics Curriculum course in the third-year fall semester were taken to the fourth-year fall semester.* (Change / Changing course periods)

A6 ... *I think that up-to-date software/programming languages should be added.* (Innovation / Adding current practices to the program)

A3 ... *I think it would be useful to add one more compulsory course on Open and Distance Learning to the program. Currently, there is a course called Open and Distance Learning. With good planning, this course can be divided into two, and more detailed topics in this field can be discussed.* (Innovation / Adding new compulsory courses)

What are the problems experienced by the participants during the teaching process and what are the solution suggestions?

Table 5 Teachers' views on the distribution of the courses in the program

Theme	Category	Code	(f)
Contribution	Scope	Training for up-to-date software	4
		Courses for programming languages	2
	Expertise	Focusing on field courses	3
		Focusing on applied courses	2
		Adding new courses	1

Teachers' views on the distribution of the courses in the CEIT program were gathered under the categories of "scope" and "expertise" under the theme of "contribution". When the answers to the scope category are examined, the teachers state that training should be provided for up-to-date software and there should be courses for programming languages. When the answers for the specialization category are investigated, the teachers mostly explain that more emphasis should be put on field courses and applied courses.

The views of the teachers regarding the findings are given below.

T1... *The courses taught in the department were mathematics, physics, chemistry, and lab courses that were not useful to us. Instead, courses for ever-evolving programming languages could have been given.* (Scope / Courses for programming languages)

T3 ...*I think it is necessary to focus on the field knowledge.* (Expertise/ Focusing on field courses)

T2 ...*Today, software has gained great importance. We provide training on block coding and robotics at schools.* (Scope / Training for up-to-date software)

Table 6 Views of academicians regarding the distribution of the courses in the program

Theme	Category	Code	(f)
Contribution	Quantity	The number of field elective courses should be increased	2
		The number of field elective course hours should be increased	2
	Expertise	Lack of applied courses	1
		Insufficient number of vocational courses	1

When the views of the academicians on the distribution of the courses in the CEIT program are examined, the answers given by the academicians are gathered under the categories of "quantity" and "expertise" within the theme of "contribution". When the answers to the quantity category are explored, the academicians suggest that the number of field elective courses and the number of field elective course hours should be increased. When the answers for the expertise category are inspected, the academicians believe that the applied courses are missing and the number of vocational courses is low.

The views of the academicians regarding the findings are given below.

A7 ... *I think that the hours of the field courses are insufficient.* (Quantity/ The number of field elective course hours should be increased)

A5 ... *However, I think that the number of field electives should be increased.* (Quantity/The number of field elective courses should be increased)

A4 ... *due to the fact that very few elective vocational courses are offered each semester, some of my students had taken the current open courses in previous semesters and there were no courses to choose from.* (Expertise/Insufficient number of vocational courses)

What are the views of the participants about the program meeting the interests and needs of the students?

Table 7 Teachers' views about the program meeting the interests and needs of students

Theme	Category	Code	(f)
Expectation	Content	The software through which products can be obtained	6
		Fun/Interesting software	5
	Variation	Course contents should be updated	1
		Variations in student requests	1
		Lack of technological material	1
		In-depth training in the programming language	1

Teachers' views on meeting the interests and needs of the students in the CEIT program are gathered under the "Expectation" theme and under the categories of "content" and "variation". When the answers to the content category are examined, the teachers state that to meet the interests and needs of the students, mostly software by which products can be obtained and fun/interesting software should be included in the program. When the answers to the variation category are investigated, the teachers consider that the students have various requests during the lesson and that they have problems meeting the interests and needs of the students due to the lack of technological materials. They also state that there should be in-depth training in the programming language in the program.

The views of the teachers regarding the findings are given below.

T3 ... *Unfortunately, the informatics course curriculum in secondary schools is on the way to becoming a course that includes too many verbal subjects and absurd and unnecessary definitions. I think that all the content of the course should be organized directly as algorithmic thinking and coding.* (Content / Software through which products can be obtained)

T5 ... *Students prefer visual and entertaining lessons. My students, with whom we are trying to learn Python, get bored of writing code in front of the screen after a certain period of time.* (Content / Fun/Interesting software)

S7 ... *While students are more enthusiastic about mobile applications, they cannot show the same enthusiasm in a Python software course. In particular, our female students are more interested in visual programming tools, while male students want to use text-based coding tools such as Python. Male students frequently ask questions about game development tools such as the Unreal engine, and they become more participatory in this regard.* (Variation / Variations in student requests)

Table 8 Views of academicians regarding the program meeting the interests and needs of students

Theme	Category	Code	(f)
Expectation	Impact	Need/Demand orientation	4
		Ineffectiveness of online lessons	1
	Content	Uninteresting content	1
		Higher level content	1

The views of the academicians about the CEIT program meeting the interests and needs of the students are clustered under the "expectation" theme and under the categories of "impact" and "content". When the answers to the impact category are inspected, the academicians state that the program should be mostly need-/demand-oriented to meet the interests and needs of the students. When the answers to the content category are examined, the academicians see the uninteresting and higher-level content as an important problem in meeting the interests and needs of the students.

The views of the academicians regarding the findings are given below.

A1 ... *It is possible to talk about the needs of the profession and/or the sector rather than the interest and needs of the student.* (Impact / Need/Demand orientation)

A5 ... *The interests and needs of the students are not met due to the high number of distance education courses in the program.* (Content / Uninteresting content)

A2 ... *I don't see a very demanding approach for our current students. The available content exceeds our students.* (Content / Higher level content)

What are the solutions and suggestions for the problems experienced by the participants during the teaching process?

Table 9 Teachers' views on the problems experienced during the teaching process

Theme	Category	Code	(f)
Quality	Environment	Lack of computer laboratory	3
		Lack of infrastructure	3
		Outdated infrastructures	2
	Student	Lack of student textbooks	1
		Lack of interest	1
		Readiness	1
	Teaching	Lack of applied courses	1
		Inadequate class hours	1
		Considered as a technician	1

The views of the teachers regarding the problems experienced during the teaching process are collected under the categories of "environment", "student" and "teaching" within the theme of "quality". When the answers for the environment category are examined, the teachers explain that the lack of computer laboratories in their schools and the lack of infrastructure are important problems. When the answers for the student category are investigated, the teachers declare that the lack of student textbooks, lack of interest, and students' readiness are among the important problems. When the answers to the teaching category are inspected, the teachers claim that they see the lack of applied courses, inadequate class hours, and being considered a technician instead of a teacher are basic problems.

The views of the teachers regarding the findings are given below.

T2 ... *The infrastructure in my school is unfortunately insufficient...* (Environment / Lack of infrastructure)

T6 ... *Students are uninterested in doing homework. They come without doing most of the homework I give them.* (Student/ Lack of interest)

T1 ... *not being able to practice on issues that require practice.* (Teaching / Lack of applied courses)

Table 10 Views of academicians regarding the problems experienced during the course teaching process

Theme	Category	Code	(f)
Quality	Environment	Lack of technological tools	3
		Lack of computer laboratory	2
		Lack of computer	1
	Student	Students' readiness	1
		Crowded classrooms	1
	Program	Outdated program	1
		Inability to adapt to the program	1

The views of the academicians regarding the problems experienced during the teaching process are clustered under the categories of "environment", "student" and "program" within the theme of "quality". When the answers to the environment category are examined, the academicians mostly state the lack of technological tools and the lack of computer laboratories in their schools as important problems. When the answers to the student category are investigated, the academicians mention the readiness of the students and the crowdedness of

the classes as important problems. When the answers to the program category are inspected, the academicians explain that they see outdated programs and not being adapted to them as the main problems.

The views of the academicians regarding the findings are given below.

A2 ... *The inadequacy of the computer laboratory in terms of hardware and software during the application process of my course challenges me.* (Environment/Lack of technological tools)

A3 ... *It is not easy for pre-service teachers who cannot keep up with the latest technology and are educated with the past technology to adapt to future developments.* (Student / Students' readiness)

A1 ... *Since the program does not comply with the requirements of the era, it does not attract the attention of the students, and therefore it makes its implementation difficult.* (Program / Outdated program)

Table 11 Views of teachers and academicians regarding the solution to the problems experienced during the teaching process

Category	Participant	Code	(f)
Suggestion	Teacher	In-service training	1
		Compulsory courses	1
		Increased class hours	1
		Project-oriented training	1
	Academician	Out-of-school solution	1

The views of teachers and academicians regarding the solution to the problems experienced during the course teaching process are collected under the category of "suggestion". The teachers propose that the course hours should be increased, compulsory courses should be given, in-service training should be provided, and students should be given project-oriented training as solutions to the problems experienced during the course process. When the answers of the academicians are examined, only one academician state that the students should bring their own computers to the school for the solution.

Participants' views regarding the findings are given below.

T7 ... *I believe that special in-service training should be organized not only remotely, but mostly face-to-face to update the knowledge of CEIT teachers over time.* (Teacher/In-service training)

A3 ... *The inadequacy of the computer laboratory in terms of hardware and software during the application process of my course makes it difficult for me. As a solution, I want students to bring their laptops.* (Academician/Out-of-school solution)

What are the views of the participants about the Teaching Practice course?

Table 12 Teachers' views on the effectiveness of the teaching practice course

Category	Code	(f)
Solution	Increased number of courses	2
	In schools with different opportunities	1
	Teaching different methods and techniques to preservice teachers	1

Teachers' views on the effectiveness of the teaching practice course are gathered under the category of "solution". Teachers suggest that for the effectiveness of the teaching practice course, the number of teaching practice courses should be increased, it should be done in schools with different opportunities, and different methods and techniques should be taught to teacher candidates in universities.

The views of the teachers regarding the findings are given below.

T1 ... *If there is no teaching practice course, I believe that the teaching methods used in the application of other educational sciences courses should change. Because innovations are still being taught to students with classical methods. In this respect, I believe that educational science teachers should conduct their lessons with more interactive and innovative approaches.* (Teaching different methods and techniques to preservice teachers)

T4 ... *I think it is appropriate to give teaching practice courses in various schools according to different hardware, software, class size, and environmental factors.* (In schools with different opportunities)

Table 13 Views of academicians on the effectiveness of the teaching practice course

Theme	Category	Code	(f)
Application	Problem	Failure in the evaluation process	1
		Lack of laboratories in practice schools	1
	Solution	It should be spread over every period	1
		Care must be taken	1

The views of the academicians on the effectiveness of the teaching practice course are collected under the "problem" and "solution" categories under the "application" theme. When

the answers to the problem category are examined, the academicians utter that the problems experienced in the evaluation process should be eliminated and that there is a lack of laboratories in the practice schools. When the answers to the solution category are explored, the academicians propose that the teaching practice course should be extended to each semester and that the necessary care should be given to this course.

The views of the academicians regarding the findings are given below.

A2 ... *Although there is certain cooperation between the MoNE and education faculties in this regard, I think that there are uncertainties about the reporting and evaluation of the activities that students will follow, which causes confusion. There is also confusion about how the evaluation made by the Ministry of National Education will affect the course grades of the students at the university.* (Problem / Failure in the evaluation process)

A6 ... *However, most of the secondary schools do not have computer labs. In fact, there are no computer labs in the schools our students attend this semester. Our students experience how to teach information technologies without a laboratory. They cannot experience lecturing in a laboratory environment in the field.* (Problem /Lack of laboratories in practice schools)

A5 ... *Teaching practice course is only available in the last year, I think it should be included in the education program every year.* (Solution / It should be spread over every period)

What are the views of participants on the adequacy of computer classes in their institutions?

Table 14 Teachers' views on the adequacy of computer classes in their institutions

Category	Code	(f)
Situation	Lack of computer laboratory	4
	Outdated/Unlicensed software	4
	Down-level computers	2

Teachers' views on the adequacy of computer classes in their institutions are gathered under the category of "situation". They state that most of the teachers do not have computer laboratories in their institutions, the computers in schools with laboratories are old and they use outdated or unlicensed software.

The views of the teachers regarding the findings are given below.

T2 ... *However, we have some shortcomings in software in our laboratories. While our ministry used to supply Adobe products, today it does not offer license support for any current program.* (Outdated/Unlicensed software)

T6 ... *The building of our institution was decided to be demolished 5 years ago because it was not earthquake resistant. We are temporarily using the building of another school. That's why we don't have an IT class. (Lack of computer laboratory)*

S1 ... *There are 15+1 computers in our IT classroom... They are not very efficient because they are old. (Down-level computers)*

Table 15 Academicians' views regarding the adequacy of computer classes in their institutions

Theme	Category	Code	(f)
Need	Status	Down-level computers	3
		Neglected computers	1
	Material	Outdated/Unlicensed software	4
		Software diversity	2
		Insufficient course materials	1

The views of the academicians regarding the adequacy of computer classes in their institutions are clustered under the category of "status" and "material" under the theme of "need". When the answers for the situation category are examined, the academicians mostly claim that the computers in the laboratories are down-level. When the answers to the material category are investigated, the academicians state that outdated/unlicensed software is mostly used on computers.

The views of the academicians regarding the findings are given below.

A3 ... *I do not find it sufficient since there is no employee dealing with computer laboratories in the institution. Two of the laboratories have better computers in terms of hardware, but most of them do not work properly. (Status / Neglected computers)*

A1 ... *There are four computer laboratories and 120 computers in our institution. The newest of these computers (16 units) was purchased about five years ago. The remaining hundred are more than ten years old, and some are not even working. (Status / Down-level computers)*

A4 *It is not enough in terms of budget to install all the software necessary for the courses on the computers under license. It is essential that more resources are allocated by the university on this subject (Material / Outdated/Unlicensed software).*

Conclusions and Suggestions

Education undergraduate programs significantly affect the training of teachers who take an active role in today's education (Orhan, 2017). In this respect, considering that the field of education has a dynamic and changing structure, it is necessary to maintain the constant up-to-dateness of teacher training programs and determine their effectiveness to achieve the desired goals. Therefore, it is important to determine the views of the academicians who are the building blocks of the theory part, and the teachers who are the fundamental elements of the implementation part.

In line with the purpose of the study, the effectiveness of the CEIT program is tried to be determined by taking the views of teachers and academicians. Three categories are reached under the "program" theme, determined according to the views received from the teachers. These are course, material, and physical condition. Considering the results obtained from these categories, it is noteworthy that the number of applied courses in the program in the course category should be increased. Under the material category, the lack of a computer at home and the need for licensed applications are mentioned. In the category of physical condition, it is stated that there is a lack of computer laboratories in schools and a lack of equipment and infrastructure in existing laboratories.

According to the views received from the academicians, it is explained under the system category that the department is no longer preferred as much as it used to be and the program is not up-to-date enough. In addition, in the course category, it is claimed that the number of elective courses is excessive, the course hours are insufficient, and the number of applied courses is insufficient. Considering the view of teachers and academicians, it is seen that the low number of applied courses is expressed as a common problem in secondary schools and CEIT departments. Although the expression "research and practice-based teacher education" (YÖK, 2018) was emphasized in the teaching undergraduate programs renewed in 2018, it is stated by teachers and academics that the number is still insufficient.

According to the views of the teachers about the solution to the problems experienced during the implementation of the CEIT program, the innovation category is reached. Under this category, teachers state that software/coding, hardware/electronics subjects should be taught in lessons and the program should be updated. According to the views of the academicians, the sub-categories of change and innovation are reached under the current theme. Accordingly, it is suggested to increase the class hours and change the periods of some courses. It is also proposed that current practices and new compulsory courses should be added. This result is

similar to the study of Yükseltürk and Altok (2015). Considering that the program has been updated relatively recently, it is a striking result that teachers and academicians said that the programs are insufficient in terms of up-to-dateness. We can attribute this situation to the fact that the CEIT field is based on technology that is constantly changing and renewed.

When the views of the teachers on the distribution of the courses in the program are examined, the categories of scope and expertise are reached under the theme of contribution. In the scope category, it is explained that the weight of the field courses in the program is insufficient and the up-to-dateness of the taught software is insufficient. In the expertise category, it is proposed that applied courses should be added. According to the views of the academicians, the categories of quantity and expertise are reached under the theme of contribution. It is suggested that the number of elective courses in the quantity category and the number of weekly courses should be increased. In the expertise category, it is proposed that the number of vocational knowledge courses should also be increased. Considering the views of teachers and academicians, it is seen that the common point is that field courses should be given more place in the program. Despite the increase in the number of content knowledge courses in the CEIT undergraduate program, which was renewed in 2018 (YÖK, 2018), it is stated that this number is still insufficient. This result is in line with the studies of Altun and Ateş (2008) and Önal (2017). Contrary to this result, there are also studies stating that the current program has a sufficient number of content knowledge courses, which may be due to the practice-based structure of the CEIT field.

When the views of the teachers regarding the program's meeting the interests and needs of the students are examined, the categories of content and variation are reached under the theme of expectation. In the content category, it is stated that funny software through which products can be obtained can attract the attention of the students. In the variation category, it is seen that the students are interested in programming languages/software and they make different requests such as the lack of necessary materials in the lessons. When the views of the academicians regarding the program's meeting the interests and needs of the students are explored, the categories of impact and content are reached under the theme of expectation. In the impact category, it is stated that it is not aimed at students' needs, and in the content category, the content of the program is above the student's level and does not attract attention. When the views of teachers and academicians are compared, it is seen that there is no structure that can attract the attention of the students in terms of content. This may be due to expectations for coding skills, which are among students' 21st-century skills (Akgün et al., 2019). Similar results

are found in the studies of Hamutoğlu (2022), Kayak (2019), Yaşar (2019), and Gülcü et al. (2013).

In determining the views of the teachers about the problems experienced during the teaching process, the environment, student, and teaching categories under the quality theme are reached. It is stated that there are no computer labs in the environment category and that there are infrastructure problems. Lack of interest and lack of student readiness are in the student category. In the category of teaching, it is stated that there is a lack of applied courses and inadequate class hours. When we look at the views of the academicians about the problems experienced during the course teaching process, the categories of environment, student, and program under the theme of quality are reached. It is explained that laboratory and materials are lacking in the environment category. In the student category, student readiness is insufficient. In the program category, it is seen that the program is not up-to-date and there is a difficulty in adaptation. When we look at the opinions of academicians and teachers, it is found that the readiness of the students and the lack of tools and materials in the laboratory are expressed as common problems, which constitute an obstacle to the implementation of the program. One of the important factors affecting student success is the level of readiness (Kearney & Garfield, 2019). The lack of student readiness at the desired level may be due to the student and the program. This result is in parallel with the study of Osman and Kurt (2017).

When the views of the teachers on the effectiveness of the teaching practice course are examined, the solution category is reached. In this context, it is stated that the number of classes should be increased, they should be held in schools with various abilities, and different methods and techniques should be included in the lessons. When the views of academicians on the effectiveness of the teaching practice course are investigated, problem and solution categories are reached under the application theme. In the problem category, the lack of an application laboratory and the problems in the evaluation process are stated, while in the solution category, it is suggested that more attention should be paid to the lesson and the lesson should be included in every semester. There are studies similar to these findings (Aslan & Sağlam, 2018; Aydın & Akgün, 2014; Gökmen, 2015; Köse & Caner, 2022; Yakar et al., 2021). By conducting and evaluating teacher candidates in accordance with the characteristics of the field in which they are educated, the teaching practice course will enable the training of competent teachers (Odabaşı et al., 2011). In this context, views received from teachers and academicians are important.

When the views of the teachers about the adequacy of the computer classes in their institutions are examined, the status category is reached. Accordingly, it is asserted that there is no laboratory, and the computers with laboratories are either old or have outdated and unlicensed software. When the views of academicians about the adequacy of computer classes in their institutions are examined, the fact that the computers are old and have out-of-date and unlicensed software are among the striking results that overlap with the views of the teachers. This is an important handicap in the teaching of the courses and the implementation of the program (Muskin, 2015). In the literature, there are studies showing that this problem has been going on for a long time (Akgün et al., 2019; Bakar-Çörez & Geçer, 2022; Bardakçı et al., 2017; Süme & Aslan, 2022).

Based on these results, the following recommendations can be made:

For practitioners;

- Minimizing physical infrastructure problems in the department by faculty administrators,
- Emphasizing coding and hardware/electronics courses in the program,
- Increasing the number of elective courses in the program and the number of weekly courses,
- Include interesting and current topics in the lessons,
- Giving more importance to the teaching practice course and applying it in different periods,

For researchers;

- Conducting mixed-method studies to analyze the needs of the department in future research.
- Comparisons can be made by carrying out studies in different universities and cities.

Compliance with Ethical Standards

Disclosure of potential conflicts of interest

No conflict of interest.

Funding

None.

CRedit author statement

The article was collaboratively written by two authors, with each contributing equally to its content.

Research involving Human Participants and/or Animals

The study involves human participants. Ethics committee permission was obtained from Balıkesir University, Social and Human Sciences Research Ethics Committee.

Acknowledgements

This study was funded by Balıkesir University Scientific Research Projects Unit (2022/045).

BÖTE Lisans Programının Öğretmen ve Akademisyen Görüşlerine Göre İncelenmesi

Özet:

Bu çalışma, öğretmen ve akademisyenlerin görüşleri doğrultusunda BÖTE lisans programının etkililiğini ortaya koymayı amaçlamaktadır. Çalışmada nitel araştırma desenlerinden fenomenoloji deseni kullanılmıştır. Çalışma grubu çok aşamalı örnekleme yoluyla seçilen 14 kişiden oluşmaktadır. Katılımcıların 8'i BÖTE lisans programından mezun öğretmenler, 6'sı ise BÖTE programında görev yapan akademisyenlerdir. Araştırmada veri toplama aracı olarak araştırmacılar tarafından geliştirilen yarı yapılandırılmış görüşme formu kullanılmıştır. Çalışmada elde edilen veriler içerik analizi tekniği kullanılarak analiz edilmiştir. Çalışmada hem öğretmenler hem de akademisyenler programın uygulanması sırasında bilgisayar sınıfı sorunlarına, ders saatlerinin yetersizliğine ve uygulamalı derslerin eksikliğine değinmişlerdir. Programdaki derslerin dağılımına ilişkin olarak öğretmenler güncel yazılımlar ve alan derslerine yönelik eğitimlere ağırlık verilmesi gerektiğini; akademisyenler ise alan seçmeli derslerinin sayısının ve haftalık saatlerinin artırılması gerektiğini belirtmişlerdir.

Anahtar kelimeler: BÖTE programı, öğretmen, akademisyen

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