# RESEARCH ARTICLE

## THE EFFECTS ON TECHNOLOGY USING EFFICACY OF TEACHER CANDIDATES OF EDUCATION FACULTY CURRICULUM

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**ABSTRACT**

The aim of this research is to determine to what extent the education that teacher candidates receive improves their competence in using technology and what need to be done in order to improve it. To this aim, fourth grade students attending Science Teaching and Mathematics Teaching undergraduate programs at the Faculty of Education were asked to express their opinions. The study was conducted with a qualitative research approach, employing the case study method and descriptive analysis. The findings suggest that the participant students are of the opinion that the education given in the Faculty of Education improves their skills to recognize and use technology, but the level of improvement is very low and inadequate.

**Özet**

Bu ara tırmanın amacı; ö retmen adaylarının aldıkları e itim ile teknolojiyi kullanma yeterliklerinin ne kadar geli ti i ve geli tirmek için ne yapılması gerekti inin tespit edilmesidir. Bu amaç do rultusunda E itim Fakültesi Fen Bilgisi ve Matematik Ö retmenli i lisans programına devam etmekte olan 4. sınıf ö rencilerinin görü leri alınmı tır.  Bu çalı ma nitel ara tırma yakla ımı do rultusunda yürütülmü olup, durum çalı ması yöntemi kullanılmı ve betimsel analiz yapılmı tır. Bulgulardan elde edilen sonuçlar do rultusunda ö retmen adaylarının e itim fakültesinde verilen e itimin onların teknolojiyi tanıma -kullanma becerilerini geli tirdi ini fakat bu geli me düzeyinin çok az oldu u ve yeterli olmadı ı kanaatinde oldukları saptanmı tır.

## INTRODUCTION

The future of the individual and the society depends on their skills to utilize and reproduce available knowledge. A contemporary education approach becomes important in order to endow people with these skills, to spread them to all aspects of life and to render them sustainable. Education policies and educational environments need to be configured in line with these developments (Laird and Kuh, 2005). In parallel with these developments, establishing technology-based education

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systems that can be applied in all levels of education will upgrade schools to the level of contemporary school practices. Benefiting from technology in designing educational environments will enrich these environments and ensure higher levels of learning as more senses are activated. The use of these technologies in educational environments created the concept of instructional technologies and new venues of practice and work (Civelek, 2008). Well-designed instructional technologies improve the quality of education, make it possible for courses to be more functional, enrich the teaching process, enhance the acquisitions of students and enable them to participate in classes more actively (Tando an and Akkoyunlu, 1998; Yalın, 2001; Handal, 2004). Moreover, they increase students' academic achievement and motivation levels. Using

technology in classes enables teachers to be more comfortable (Altun Yalçın, Kahraman and Yılmaz, 2011). For these reasons, we need to be meticulous while choosing the technologies to be employed in the process of teaching-learning (Tando an and Akkoyunlu, 1998).

A contemporary education could be given schools if well-developed educational instruments fitting to the subject are employed efficiently. Materials used in education should be suitable to students' characteristics. It is especially important that the selected material should be suitable to the development level and readiness of the student. For materials to be employed meaningfully, it is necessary to lean them on students' knowledge of their skills, achievement levels and interests (Hollingsworth and Hoover, 1991). Besides, materials should be easily accessible and utilizable (Senemo lu, 2001). Difficulties are experienced in the process of integrating technology into educational environments and teachers are not capable of using instructional technologies sufficiently in teaching-learning environments (Baltacı, 2005; Yılmaz, 2007). Teachers do not use technology in their classes because; schools do not have adequate technological infrastructures, teachers prefer traditional teaching techniques, they do not embrace technological innovations, they are not well-trained in this field, they do not have adequate knowledge about instructional technologies and they are not open to developing and complicating information. Besides, technology use in classes is negatively affected by high numbers of students in classrooms that makes control difficult, teachers' attitudes and behaviors towards students, and students' anxiety about sciences (Yılmaz, 2007; Ça ıltay vd., 2001). The case that the content of the course to be taught is output-oriented is also among the factors that influence the level of technology use in classes (Yalın, 2001; Staniküniene, 2006).

The level of technology use in classes by teachers is also influenced by their attitudes towards technology, faculties they graduated from, their educational levels, their familiarity with technology and their everyday habits of using technology, the content and quality of the education they received, seniority, and their cognitive, affective and psychomotor traits. For example, it was determined that teachers are competent in using technological devices with which they are familiar in their everyday lives, whereas they are not competent in using those instruments that they do not encounter in their daily lives (projector, scanner, slide device, video camera) (Baltacı, 2005). It was found that those graduated from faculties of education are more competent in, eager to and conscious about using technology in their classes (Karamustafao lu, 2006). It was observed that teachers find it necessary and use technology in classes as their educational levels go up (Baltacı, 2005), whereas they become less competent in technology use as their professional seniority goes up. It was also determined that the lack of education received in this field negatively influences teachers' level of benefiting instructional technologies (Sugar, 2002).

Benefiting from information technologies during university years has a significant influence upon using these technologies in classes while teaching (Karaca, 2008), because teachers begin to learn teaching during the university. They learn in this period how to use instructive technologies in classroom activities during their future service. Therefore, it is important for teacher candidates to develop positive attitudes towards instructive technologies at the undergraduate level (Teo, 2008). Teachers' attitudes towards using instructional technologies also affect their tendencies to use them (Handal, 2004). In order for teacher candidates to have more positive attitudes towards this issue, it is not enough only to take computer and material design courses, but also they need to believe that instructional technologies have a future-oriented educational purpose and that these technologies make learning easier. In teacher training programs, instructors should inform and encourage teacher candidates about issues such as using technology, teaching, preparing students for teaching, arranging education, communicating with others inside and outside the school, and orienting students towards using technology (Russell vd., 2003; Davis vd., 2009; Altun Yalçın vd., 2011) and they should ensure the acquisition of new information and skills regarding new technologies by teacher candidates (Akpınar, 2003). However, there are certain criticisms about faculties that train teachers (Abdal-Hagg, 1992). First, those who train teachers are not competent in using computers in a way suitable to the purpose of education and they are not good role models for candidates. Although for teacher candidates to use technology in classrooms is linked with their skills, it is important to learn during university years how to use technology, and thus, trainers of teacher candidates are required to use such technologies in their classroom environments in order to endow candidates with these skills (Dexter and Eric, 2003). Second, the curricula have not been prepared in line with technologies. Third, the training given to candidates is given mostly through old and simple computer technologies rather than through applications that are aimed at endowing candidates with thinking and problem-solving skills. It was determined that Science and Mathematics teachers do not use technology adequately in their classes (Dindar and Yaman, 2003). For teacher candidates to have the capacity to use instructional technologies in their future professional lives; it is required to endow them with technical knowledge, to provide environments that makes it easier for them to learn when and how to use instructional technologies, and to furnish learning environments with necessary technological devices (Pedersen and Jernick, 2000; Bell, 2001; Türkmen and Pedersen, 2005; Civelek, 2008). In line with these data, it was aimed in this research to determine to what extent the education that teacher candidates receive improves their competence in using technology and what need to be done in order to improve it.

The purpose of this research is to determine to what extent the education that teacher candidates receive improves their competence in using technology and what need to be done in order to improve it. In line with this general purpose, the research has the following sub-purposes;

* Determining whether the education received by fourth-grade Faculty of Education students improves their skills to use technology, and whether this level of improvement is adequate.
* Determining whether the education given to fourth-grade Faculty of Education students makes them capable of

  solving problems that they encounter while using technology.
* Determining how the education given to fourth-grade Faculty of Education students influences their beliefs about their future capability of employing instructional technologies in their professional lives.

## MATERIALS AND METHODS

The working group of the study consisted of a total of 84 fourth-grade teacher candidates (43 Science Teaching, 41 Mathematics Teaching). The study was conducted with a qualitative research approach, employing the case study method and descriptive analysis. The study was conducted with a qualitative research approach, employing the case study method (27) and descriptive analysis. In such an analysis, the aim is to present the findings to readers in an arranged and interpreted form (Yıldırım and  im ek, 2006). In the research, semi-structured interview technique was employed as the data collection method. The aim in semi-structured interviews is to determine the parallelisms and divergences among the responses given by interviewees and to make comparisons accordingly (Brannigan, 1985). The semi-structured interview included six questions, which were prepared by taking into consideration the aim of the research, the literature review, observations of the researchers and opinions of the relevant experts. In order to ensure content validity of the questions, they were presented to the opinions of three experts in the field, and then necessary corrections and modifications were done accordingly. Moreover, the pilot application of the semi-structured interview was conducted with three professors in order to determine the order and form in which the questions would be asked. The questions are the following:

1. Has the education given in the Faculty of Education improved your skills to recognize and use technology? Why? If you think it has, how? Do you think this level of improvement is enough?
2. What could be done in faculties in order to improve teacher candidates' skills to use technology? What would you suggest?
3. Do you think you will be able to effectively use instructional technologies in your professional life? Why?
4. Do you think you are capable of solving the problems you encounter while using instructional technologies? (For example, what problems can you solve?)

**Analysis of Data**

In this research, the data collected through semi-structured interviews were subjected to descriptive analysis, and they were brought together accompanied by certain codes and themes that were similar to one another. This practice was performed separately by the three researchers, and then they came together and compared them in order to check their consistency. It was observed that the codings were largely in parallel with each other. In company with three scientific experts; quotations put under each code were assessed one-by-one and interview codes were given their final forms. The data were arranged and interpreted through the final forms of the analyses.

Yıldırım and  im ek (2006) suggested that the validity of a qualitative research can be achieved through expert opinions, participant approvals and detailed description; and the reliability of the research can be achieved through a study of consistency and confirmation. The results that came out in order to achieve the validity of the research were confirmed by three participants in the working group. In order to control the reliability of the research, the raw data of the research were given to an outside expert; and then the conclusions, interpretations and suggestions that this expert produced out of those data were compared to those produced in this research. On the other hand, while discussing the findings of the research, detailed excerpts were presented under relevant themes, and thus, the quality of the research was increased.

## RESULTS

In this section, the responses given by teacher candidates in the semi-structured interviews will be assessed.

***Question: 1. Has the education given in the Faculty of Education improved your skills to recognize and use technology? Why? If you think it has, how? Do you think this level of improvement is enough?***

The responses to this question were divided into three categories: positive responses (Yes, it has), negative responses (No, it has not) and both positive and negative responses (It has somewhat improved). These categories and codes are presented below (Table 1).

The category of "positive responses" is divided into three codes. In this category, seven people produced the code "we learned the functions of devices", five people "we acquired the skills to use them better", and three people "we obtained theoretical knowledge". The teacher candidates who produced these codes generally reported that they acquired these skills thanks to the courses of computer laboratory and instructional technologies and materials design, assignments given in courses and professors' use of technology in classes. Among the responses given to the first question, the category of "negative responses" has the highest frequency (34 people). This category was formed by the code "our skills to recognize and use technology have not improved". As the reasons behind this, the teacher candidates reported the limited opportunities offered in classes in terms of technology use, the limited number of technological devices in the faculty, the low number and credits of courses through which they could learn about technology and the limited use of technology by professors in classes. On the other hand, three students argued that the education they receive has not improved their skills to recognize and use technology since they already had the required knowledge. Besides, six of the teacher candidates reported that the education is not useful for them as the technologies taught and used in the faculty are common and simple ones. The third category, on the other hand, was formed by the codes "our skills to recognize and use technology have improved compared to our previous state" (27 people) and "we recognize technology but are unable to use it" (8 people).

**Table 1. Analysis of the responses given by teacher candidates to the first question**

| Categories | Codes | Reasons | Frequency |
|---|---|---|---|
| **Positive Responses** | Acquiring the skill to use better | Thanks to the courses of computer laboratory, instructional technologies and material design | 5 |
| | Learning what the functions of devices are | Thanks to the assignments given in courses | 7 |
| | Obtaining theoretical knowledge | Thanks to the professors' use of technology in classes | 3 |
| **Negative Responses** | Our skills to recognize and use technology have not improved | Since we do not use technology in classes | 7 |
| | | Since the technologies used and taught in the faculty are simple ones already known by everyone | 5 |
| | | Since the faculty does not have adequate number of technological devices | 5 |
| | | Due to the low number and credits of courses through which we could learn about technology | 5 |
| | | Since our professors do not use technology in classes adequately | 9 |
| | | Since I already have the required knowledge | 3 |
| **Both Positive and Negative Responses** | Our skills to recognize and use technology have improved compared to our previous state | Opportunities are limited | 4 |
| | | Since the technologies used and taught in the faculty are simple ones that are already known and can be used by everyone | 8 |
| | | Since the faculty does not have adequate number of technological devices | 8 |
| | | Due to the low number and credits of courses through which we could learn about technology | 7 |
| | We recognize technology but are unable to use it | Since our professors do not use technology in classes | 8 |

**Table 2. Analysis of the responses given by teacher candidates to the second question**

| Categories | Codes | Frequencies |
|---|---|---|
| **For the faculty** | Consciousness-raising | 3 |
| | Cooperation with faculties | 2 |
| | Enriching the faculty technologically | 10 |
| | Special trainings | 3 |
| | Guidance | 7 |
| **For program-developers** | Teaching necessary information | 4 |
| | Up-to-date technology course | 3 |
| | Increasing course credits | 9 |
| | Increasing the number of computer courses | 9 |
| | Practical courses | 8 |
| | Importance given to practice | 6 |
| **For professors** | Activities with technological content | 9 |
| | Qualities of professors | 7 |
| | Enriching courses with technological devices | 4 |

The reasons put forth by the teacher candidates are the limited opportunities offered by the faculty and the limited number of technological devices, the low number and credits of courses through which they could learn about technology and the limited use of technology by professors in classes. Moreover, the teacher candidates with the codes of f4, m8, m10, f13, f18, m23, m28, m38, f41 reported that the technologies taught and used in the faculty are those that are known and could be used by anybody, and that technologies that they have not encountered before and that they could use in the future such as smart board are not used. Finally, 46 teacher candidates stated that the capacity of faculties of education to improve skills of using technology is not sufficient.

***Question: 2. What could be done in faculties in order to improve teacher candidates' skills to use technology? What would you suggest?***

The responses given to this question by teacher candidates were divided into three categories: for the faculty, for program-developers and for professors. These categories are presented in Table 2:

As Table 2 shows, under the category of "for the faculty", teacher candidates stated that the technological facilities should be improved and special trainings should be offered. Besides, they pointed to the issue of "cooperation with faculties", which they think would positively contribute to the education that they receive. Some (f1,f3) of the students who were of this opinion stated that "technological facilities could be improved by way of cooperation with other faculties that give technical education". In the codes "consciousness-raising" and "guidance", it is seen that teacher candidates are of the belief that faculties need to raise their consciousness about technology use and to guide them on the way of accessing scientific resources about recognizing and using technology. When the category of "for program-developers" is reviewed; it is seen that teacher candidates are of the belief that credits of courses that teach technology, courses in which they find the possibility of practicing with devices and computer courses should be increased. It is also observed that they think that courses oriented towards the application of technology and courses that follow today's technological developments need to be included in curricula. Students who wanted the up-to-date technology course expressed their opinions as follows: "a

course that constantly follows new technologies could be added and the name of this course could be 'technological news'" (f12) and "I would like to take a technology course that will demonstrate in practice the most recent technologies to teacher candidates" (f13, f33, f46, m36). The category of "for professors" was formed by the code "activities with technological content". Under this code, teacher candidates reported the necessity of giving project assignments with technological contents and of organizing contests and seminars. The code "teaching necessary information" was formed by candidates' opinions that subjects that they do not use and will not use in their future professional lives are taught in technological courses in the faculty of education, and the opposite of this current situation would be suitable. On the other hand, the code "qualities of professors" was constituted by candidates' opinion that professors do not effectively and productively employ technological devices in their classes. They expressed this opinion with the following sentences: "professors should set examples for teacher candidates in terms of technology use " (m3, f42), "our professors cannot even use a computer" (f8, f17, m22) and "our professors use only a couple of technological devices while teaching and they fail to set good examples in terms of using technology in classes " (m17, f23). Finally, the code "enriching courses with technological devices" was formed by their opinion that courses need to be enriched with technological devices.

### Question: 3. Do you think you will be able to effectively use instructional technologies in your professional life? Why?

**Table 3. Analysis of the responses given by teacher candidates to the third question**

| Categories | Codes | Frequencies |
|---|---|---|
| **Yes** | Application and affiliation with life | 4 |
| | Related to my courses | 3 |
| | Skill to effectively use instructional technologies | 5 |
| | Fulfilling the requirements of the profession | 9 |
| **No** | Lack of skills | 24 |
| | Inadequacy of the education given | 8 |
| **Partially** | Self-improvement | 8 |
| | Only as much as the student needs | 12 |
| | In some subjects | 11 |

The responses given to this question were divided into three categories: yes, no and partially. As Table 3 shows, the category of "yes" consists of four codes. The one with the highest frequency among them is "fulfilling the requirements of the profession". Teacher candidates who formed this code stated the following: "I will do my best to provide my students with a good education" (f27, m13), "I will actively use technological devices as I think they will be of use for my students" (f11, f26, f40, m9, m14, m33) and "I will use technology in order to fully fulfill the requirements of my profession" (m30). The code "application and affiliation with life", on the other hand, was formed by the opinion that the use of technological devices in classes would make it easier to link the subjects taught with the actual life. Moreover, teacher candidates reported that they would use technology since it is closely linked with their courses and since they have the skills to effectively use instructional technologies. Those teacher candidates who formed the category of "no" reported that they

do not possess the necessary skills to use technology in classes and that the technology use skills they currently have are not sufficient. Moreover, teacher candidates are of the belief that the education given to them in the faculty of education is far from enough for them to use instructional technologies in their future careers. When the codes under the category of "partially" are reviewed; the one with the highest frequency is "only as much as the student needs". The teacher candidates who formed this code expressed their opinions as follows: "Actually, I am not competent in using technology at all, but I still believe that I can use it in my classes, because it is not that difficult to use the technologies employed in classes " (f5), "I am capable of using technology as needed for conducting classes" (f1, m3, m24) and "I can use technology to an extent that is enough for students" (f4, f5, f23, f43, m17,19, m21, m29). The teacher candidates, who formed the code "self-improvement", on the other hand, reported that although they possess certain degree of knowledge and skills to use technology, this is still not enough, but they can use it on the way of improving their existing skills. Finally, the code "in some subjects" was formed by the opinion that they could use technology only in teaching some subjects in classes.

### Question: 4. Do you think you are capable of solving the problems you encounter while using instructional technologies? (For example, what problems can you solve?)

**Table 4. Analysis of the responses given by teacher candidates to the fourth question**

| Categories | Codes | Frequencies |
|---|---|---|
| **Yes** | I believe I am capable of solving | 9 |
| **No** | I do not believe I am capable of solving | 21 |
| **Partially** | Only the technological devices in the laboratory | 5 |
| | I can solve every problem if it is not technical | 21 |
| | I can solve some problems | 17 |
| | I can solve problems related to some technical devices | 11 |

The responses given to the fourth question are divided into three categories. The category of "yes" consists of the code "I believe I am capable of solving", which shows that nine of the participants see themselves as capable of solving technological problems. On the other hand, 21 of them do not believe they could solve problems they would encounter while using technology. Among the codes that formed the category of "partially", the code "I can solve every problem if it is not technical" has the highest frequency. On the other hand, the codes "I can solve some problems" and "I can solve problems related to some technical devices" indicate that teacher candidates believe that they are capable of solving only some of the problems they could encounter while using technology, and that they could solve problems related to those devices that they use frequently such as computer, overhead projector, projector and microscope. The code "only the technological devices in the laboratory" suggest that teacher candidates are of the belief that they are capable of solving problems that they encounter while using the technological devices in the laboratory. Only 55 of the teacher candidates expressed their opinions and reported that they believe they could solve simple and non-technical problems.

## Conclusion

In this research, the aim was to determine how the education received by teacher candidates in the faculty of education improves their skills to use instructional technologies, which is among the essential elements of quality and contemporariness of the education system, along with finding out what need to be done in order to improve these skills. Although there exists studies in the literature on the skills of teacher candidates and teachers to use technology, studies and samples are limited specifically aimed at determining teacher candidates' expectations from and suggestions for faculties. In the research, the following findings were obtained:

When the responses given by teacher candidates to the first question are reviewed, it is seen that their competence in using technology has developed to some extent, but they do not see this level of improvement sufficient, and they believe that they recognize technology but unable to use it. As reasons lying beneath the lack of improvement, they put forth the following: limited technological facilities offered by the faculty, limited number and credits of courses through which they could learn about technology, those devices that are taught and used in the faculty are the ones that are known and could be used by everyone, and professors' insufficient use of technology in their classes. On the other hand, they showed the following as the reasons behind the improvement of their skills: availability of the computer laboratory and instructional technologies and material design courses, assignments given in classes and professors' use of technology in classes. Given the findings that teachers are not well-trained in technology use and they do not possess sufficient knowledge regarding instructional technologies (Çağıltay vd., 2001; Yılmaz, 2007), it is of great importance to familiarize teacher candidates with contemporary technology, to provide educational environments that enable them to obtain required knowledge and experience (increasing the number and credits of courses with technological content), and for professors to render their classes centers of teaching and learning in which instructional technologies are applied the fullest extent.

To the question "What could be done in faculties in order to improve teacher candidates' skills to use technology? What would you suggest?"; 39 of teacher candidates addressed program-developers suggesting the following: increasing the credits of courses with a technological teaching content, courses that give them the possibility of practicing with technological devices and computer courses; giving importance to the practice; and adding practical course and course that follow up-to-date technology into the curricula. Wilkinson (1980) suggested that teachers who have been trained in the use of instructional materials use them more often and more effectively, which in turn creates a greater effect on students. This finding is completely in parallel with the demands of teacher candidates in this study.

25 the expectations of teacher candidates from faculties, on the other hand, are the following: increasing technological facilities in faculties and offering special training programs, cooperating with other faculties in terms of technological facilities and professors who would teach technology, and

raising consciousness among students about technology use and to providing guidance to them on the way of accessing scientific resources about recognizing and using technology. Their opinions are in parallel with the idea that "instructors in teacher training programs should inform and encourage teacher candidates about issues such as using technology, teaching, preparing students for teaching, arranging education, communicating with others inside and outside the school, and orienting students towards using technology" (Russell vd., 2003; davis vd., 2009). Given the finding that for teacher candidates to benefit from information technologies during university years has a significant influence upon using these technologies in classes while teaching in the future (Karaca, 2008); it could then be argued that students' expectations are highly pertinent. 16 teacher candidates expect from their professors to assign project works to students that include technological content, to organize seminars and contests, to have the capacity to effectively utilize technology in classes and to endow classes with technological devices. The findings of this research are totally in parallel with the idea of Dexter and Eric (2003) that teacher candidates should learn how to use technology during their undergraduate years in order to be able use technology in classes in their future professional lives, and thus, their educators need to use these technologies in order to endow students with such skills. Moreover, lack of adequate knowledge and experience among professors has a negative effect on candidates' future use of technology in classes.

To the question "Do you think you will be able to effectively use instructional technologies in your professional life? Why?"; 32 teacher candidates responded "no", 21 said "yes" and 31 said "partially". It was determined that those who believed that they could use instructional technologies effectively in classes are of the opinions that they want to fulfill the requirements of the profession, that they possess necessary skills to use them, that it would be easier to connect the subjects they would teach to the everyday life if they use these technologies, and that technology is closely related to their courses. The findings of the current research are completely in line with the findings that teachers' level of using instructional technologies is directly influenced by their attitudes towards instructional technologies (Handal, 2004), by their knowledge and skills and realizing the importance of such technologies (Baltacı, 2005), and by the awareness about accomplishing the task of teaching (Reid, 2007). Those who do not believe, on the other hand, reasoned that they do not possess necessary skills and that the education given in the faculty of education is not adequate. It is in parallel with the finding that the insufficiency of the education that students receive negatively influences the level of use of instructional technologies in classes (Baltacı, 2005). Those who reported that they are partially capable of using instructional technologies suggested that they could use them only in some subjects in classes and only as much as their students need.

Among the responses given to the question "Do you think you are capable of solving the problems you encounter while using instructional technologies? (For example, what problems can you solve?)", the category of "partially" has the highest percentage. It was observed that teacher candidates believe that they could solve problems related to the devices in laboratory,

non-technical problems, or only some technological problems. On the other hand, 21 of them reported that they do not believe they could solve the problems that they would encounter while using technology, whereas nine of them believe they could solve them. It could be concluded that the majority of the participant teacher candidates believe that they are capable of solving simple and non-technical problems.

**Suggestions**

The findings indicate that teacher candidates believe that the education given in the faculty of education improves their competence in recognizing and using technology, however this level of improvement is limited and seen as insufficient. They think that this slight improvement stems from computer courses and assignments that need to be prepared in computer environment. It was also determined that they do not believe that they could solve technological problems that they will encounter in their future careers. They think that the number of computer courses offered in faculties of education should be increased in order to have better skills in computer use.

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