

## EFL STUDENT TEACHERS' PERCEIVED KNOWLEDGE ON INTEGRATING ICT

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**Abstract:** The integration of ICT in education forces teachers to be competent in using ICT instantly. Teachers are required to have qualified in ICT competencies. Especially in this pandemic era, teachers must have competencies in utilizing technology resource and skill to provide learning effectively both in real and virtual classroom. The purposes of this research are: 1) To find out whether EFL student teachers have perceived knowledge on integrating ICT after they study ICT in ELT course or not. 2) To explore how EFL student teachers' perceived knowledge on integrating ICT after they study ICT in ELT course. The participants of this research were thirty-seven (37) student teachers of 5<sup>th</sup> semester English Education Department 2021/2022 UNIKAL. The data was collected by giving online questionnaire to the participants. The questionnaire measured the six variables of interests: student teachers' knowledge on basic ICT tools and application, student teachers' knowledge on theories, skills, strategies of ICT tools and application, student teachers' knowledge on ICT online application, student teachers' knowledge on ethics of using digital information, student teachers' knowledge on class management skills and student teachers' knowledge on solving the problem in implementation of ICT in ELT. In short, the result showed that most of student teachers were able to integrate ICT in the classroom, so it can be concluded that student teachers who have a good perceived knowledge can apply the use of ICT in a classroom. Regardless, the students' teachers still need to empower themselves to be adaptable in using ICT tools in the future.

**Keywords:** *ICT; perceived knowledge; student teacher.*

### INTRODUCTION

Information and communication technology, in this article we would call it simply as ICT, is one of the important tools to decrease the digital divide in the country. ICT is used as an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems, as well as the various services and applications associated with them, such as video conferencing and distance learning. When technology is integrated into instruction in conjunction with effective teaching practices, it can enrich and enhance teaching and learning processes. With the changes in the nature of education wrought by advances in technology, teachers' key role in the successful integration of technology into the classroom has gained further significance. Therefore, it has become critical to understand the

factors affecting teachers' technology integration. Önalın, & Gökçe (2020) shows that the present case study conducted with 70 university-level Turkish EFL teachers still focuses on the factors affecting teachers' technology integration practices and specifically explores teachers' knowledge about computer software programs, personal computer-use habits, attitudes toward and self-confidence in integrating computer-based technologies into teaching, and their views about school climate and support. The findings of the study have implications regarding technology integration in the classroom in that teachers need to be provided with ample technology, along with administrative and technical support as well as continuous training specifically designed to address their identified needs in technology use and integration.

The transformation from face-to-face teaching to online teaching in this COVID-19 pandemic makes

teachers have no excuse to integrate ICT in their teaching. Thus, ICT becomes the most important tool in educational setting currently. However, Fitri (2021) in her research found that only 10% is known about how EFL teachers perceived the effectiveness of ICT integration in their teaching during this pandemic in Indonesia. The results revealed that the majority of EFL teachers had positive perception in integrating ICT due to its effectiveness. However, it was also reported that lack of internet access, few technical supports from schools, and limited knowledge and training of ICT discouraged them in using ICT. This study indicated the importance of stakeholders and government supports to promote ICT-based teaching and learning by providing adequate technology access and technical supports for EFL teachers.

Technology is an important part in societies (Allen, 2019). All countries are effort to implement the technology in all segments, especially in education. Technology in education really needs to improve the students' performance at school. When there is a scarcity of educational resources, ICT can provide a medium and a path that bypasses the bottleneck of textbooks production, distribution and updating (UNESCO, 2014).

ICT requires the use of teaching and learning process which is student centered can against teacher centered learning. The students are more involved in teaching and learning process as it is more interactive and the students can take part in teaching and learning process. ICT is the important tools in enabling students and teachers to learn more effectively.

The integration of ICT in education makes teachers to be competent in using ICT. Teachers are required to have qualified in ICT competencies. Especially in this pandemic era, teachers must have competencies in technology resource and skill to provide learning effectively both in real and virtual classroom. The effective integration of ICT into education can be thought to enable effective citizens and workers to acquire functional and critical thinking skills such as information literacy, media literacy, and ICT literacy in the 21st century.

Hence, student teachers should acquire the skills and knowledge essential for ICT use in their teaching and learning process, and apply them in their education period and in their professional life. Student teachers must have knowledge of ICT for

their supplies when they face student needs in the next century. As a teacher, they also must be media and information literate to critically assess media texts and information sources. Durriyah & Zuhdi (2018) found that many student teachers are active users of digital technologies yet they are reluctant to make use of digital technologies for literacy teaching purposes. Efforts to prepare student teachers for technology integration are pressingly needed.

The reason of pedagogical is to ensure the students have access to imitate teachers, be able to see laboratory demonstration, are taught simple and complex concepts and receive simultaneous education in their location. Even though the government plan was appreciable, ICT is changing radically. Therefore, it is important to assess student teachers' perceived knowledge in integrating ICT. The urge to use ICT in teaching and learning builds an effective learning environment, thus transforming the overall teaching and learning process, where, the students deal with knowledge actively, in a self-directed and constructive way. Moreover, the students will be more interested when the teaching and learning process using ICT which keep up with the times. Teachers must have knowledge in integrating ICT so that the gap with students not too much differ in how they way to learn in this time. Besides that, teachers must be able to have knowledge in other areas, especially in technology. They can deliver their knowledge to students successfully. The ICT integration can help students and teachers to improve their quality in education. Using ICT in right condition, it can useful for teaching and learning process. One of factors influencing learning success is not only the availability of technology, but also the design of pedagogical for effectiveness in using ICT.

Based on Park, Gardner & Thukral as cited in Ghaffar (2021) the term of perceived knowledge is used to refer to one's self-assessment or feeling of knowing the information needed to evaluate knowledge in a class. Perceived knowledge can lead to greater feelings of efficacy. UNESCO (as cited in Gandhi & Lynch, 2016) aforementioned that teachers' pedagogical approaches are determined by their knowledge of their own subject. Some teachers may choose in integrating ICT in their teaching and learning process without having a direct link to the lesson being taught. There is a direct effect of using ICT on students when the

teachers use their knowledge of the subject and how the students understand the subject. The researcher in this case is also believed that it is necessary for the teachers to have a positive perception towards ICT which in return, prove as an advantage in the implementation of ICT. They also believed that the teachers' positive perception towards ICT will help them to improve their skills and would allow them to impart the knowledge to students easier. It means that teachers must have knowledge and positive perception towards ICT so that the students can more understand the materials that have been given to them. Moreover, the students enjoy in joining learning process in class using ICT. By using ICT, teachers can motivate students and grow their interest in learning. It also can help the teachers to provide feedback. Moreover, nowadays students have competitive mind, so the teachers must have the knowledge of the subject, which is can be done through ICT.

Teachers' and students' perceptions of their own knowledge have an important role in shaping their perceptivity. The greater one's feeling of knowing an issue, the more time one wants to spend working on that issue. Perceived knowledge also is involved for behavior. Attitudes are more predictive for behavior when they are associated with high rather than low levels of perceived knowledge of a topic. Student teachers' perceived knowledge on integrating ICT can divided into six main issues, namely: student teachers' knowledge on basic ICT tools and application, student teachers' knowledge on theories, skills, strategies of ICT tools and application, student teachers' knowledge on ICT online application, student teachers' knowledge on ethics of using digital information, student teachers' knowledge on class management skills and student teachers' knowledge on solving the problem in implementation of ICT in ELT.

## **METHOD**

This study is classified into qualitative research. Qualitative research is effective in obtaining culturally specific information about the values, opinions, behaviors, and social contexts in particular populations. To be more specific, the type of this research is case study. Qualitative case study is a research methodology that helps in exploration of a phenomenon within some particular context through various data sources, and it undertakes the exploration through variety of lenses in order to

reveal multiple facets of the phenomenon Baxter & Jack (as cited in Lucas, Fleming & Bhosale, 2018). Researcher investigates student teachers perceive knowledge in ICT after they study about ICT in ELT. This research was conducted at English Education Department Pekalongan University. The researcher only focused in 5<sup>th</sup> semester student teacher of English Education Department 2021/2022. Even though, the data was conducted at 5<sup>th</sup> semester, the analyzing of the data conduct around April 2022.

In order to collect the primary data, the researcher gave the link of questionnaire to the student teachers. By using this technique, the researcher conducted the data from their perception about topic to support the data. The researcher prepared some questions related to their perceived knowledge on integrating ICT. To collect the secondary data, the researcher contacts some participants to ask them related their answer in the questionnaire.

## **RESULTS AND DISCUSSION**

### *Results*

The results of this research are focused on student teachers' perceived knowledge on integrating ICT in ELT. Student teachers' perceived knowledge on integrating ICT in this research is classified into six main issues, namely: student teachers' knowledge on basic ICT tools and application, student teachers' knowledge on theories, skills, strategies of ICT tools and application, student teachers' knowledge on ICT online application, student teachers' knowledge on ethics of using digital information, student teachers' knowledge on class management skills and student teachers' knowledge on solving the problem in implementation of ICT in ELT.

### *Student teachers' knowledge on basic ICT tools and applications*

*Statement: I know basic computer application programs such as Word processing, Excel, PPT, and PDF*

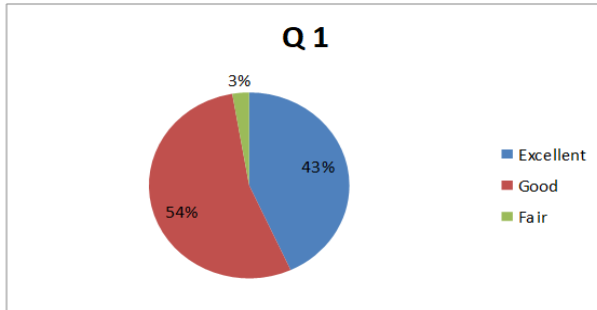


Figure 1. The chart of student teachers' knowledge on basic computer application program

The result of the first statement is 43% excellent, 54% good and 3% fair. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at the basic computer application program such as word processing, PDF, Excel and PPT and just 3% from 100% have fair knowledge.

Statement 2: I know ICT tools such as computers, laptops, and LCD projectors

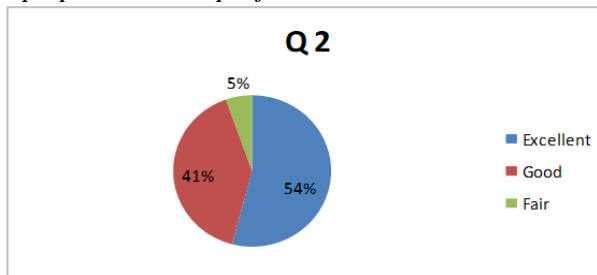


Figure 2. The chart of student teachers' knowledge on ICT tools

The result of the second statement is 54% excellent, 41% good and 5% fair. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at the ICT tools such as computers, laptops and LCD projectors and just 5% from 100% have fair knowledge.

Statement: I know portable ICT tools such as smartphones, tablets, and digital camera

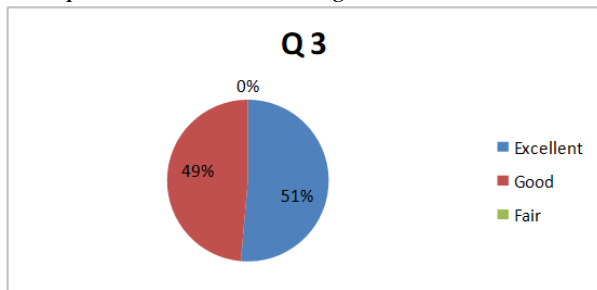


Figure 3. The chart of student teachers' knowledge on portable ICT

The result of the third statement is 51% excellent, 49% good. From the result it's indicate that all of the respondents have good knowledge (good and excellent) at the portable ICT tools such as smartphones, tablets, and digital camera.

Statement: I know ICT applications such as internet, search engines, websites and social media

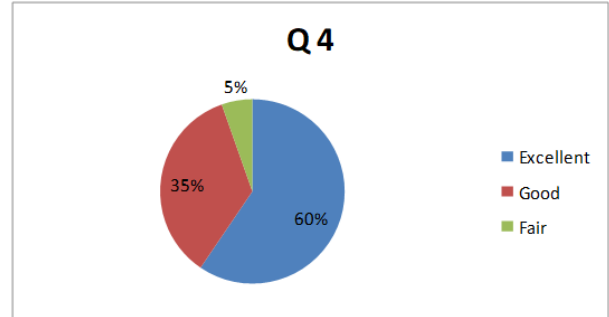


Figure 4. The chart of student teachers' knowledge on ICT applications

The result of the fourth statement is 60% excellent, 35% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at the ICT applications such as Internet, Search Engines, Websites and social media, and just 5% from 100% have fair knowledge.

Based on the result of the analysis of student teachers' response, it is found that student teachers at English Department UNIKAL had an excellent knowledge in ICT basic tools and portable ICT tools, such as computer, laptop, LCD projector, smart phone, tablet and digital camera. They had an excellent knowledge in ICT applications such as Internet, Search Engine, Website and social media. They also had a good knowledge in basic computer applications such as word processing, Excel, PPT and PDF. So that student teachers can apply their knowledge in teaching and learning process. As cited in Singh & Chan, 2014, it said that using ICT in teaching and learning builds an effective learning environment, thus transforming the overall teaching and learning process, where, the students deal with knowledge actively. Moreover, the students will be more interested.

Student teachers' knowledge on theories, skills, strategies of ICT tools and applications

*Statement: I know and understand approaches of ICT for language teaching such as CALL, LMS, TELL, MALL, blended learning, massive open online course*

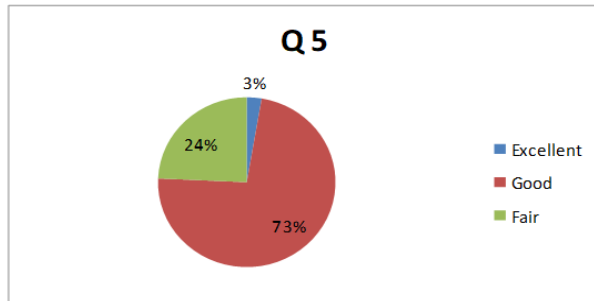


Figure 5. The chart of student teachers' knowledge on approaches of ICT for language teaching

The result of the fifth statement is 3% excellent, 73% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at the approaches of ICT for language teaching such as CALL, LMS, TELL, MALL, Blended Learning, Massive Open Online Course, and 24% have fair knowledge.

*Statement: I know and understand various forms of ICT tools and applications which are accessible for use in teaching English*

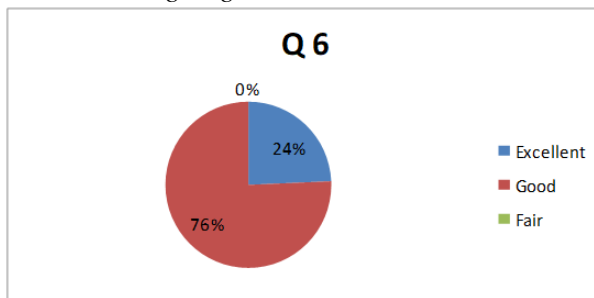


Figure 6. The chart of student teachers' knowledge on various forms of ICT tools and applications in teaching English

The result of the sixth statement is 24% excellent, 76% good. From the result it's indicate that all of the respondents have good knowledge (good and excellent) at various forms of ICT tools and applications which are accessible for use in teaching English.

*Statement: I know how to use common ICT tools such as computer, laptop, and LCD projector for teaching English*

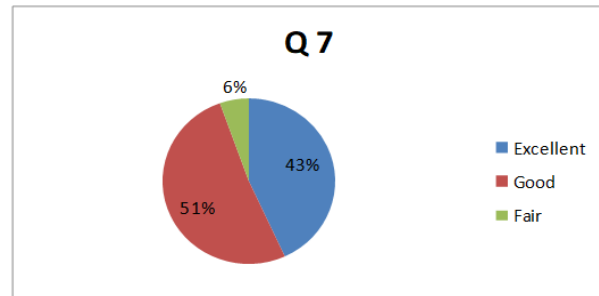


Figure 7. The chart of student teachers' knowledge on how to use ICT tools

The result of the seventh statement is 43% excellent, 51% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to use common ICT tools such as computer, laptop, and LCD projector for teaching English, and just 6% have fair knowledge.

*Statement: I know some theories and instructional models of ICT integration in ELT*

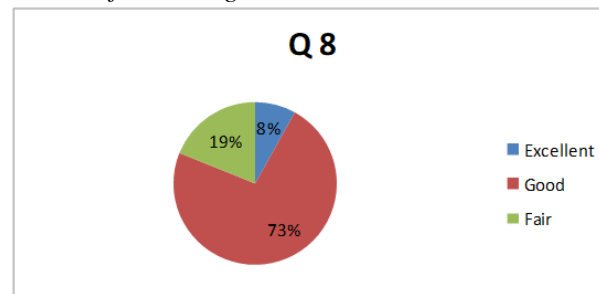


Figure 8. The chart of student teachers' knowledge on theories and instructional model of ICT integration in ELT

The result of the eighth statement is 8% excellent, 73% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at some theories and Instructional models of ICT Integration in ELT, and 19% have fair knowledge.

*Statement: I have the skills and strategies to make use of mobile devices (e.g. smartphones, tablets, etc) and their applications for teaching English*

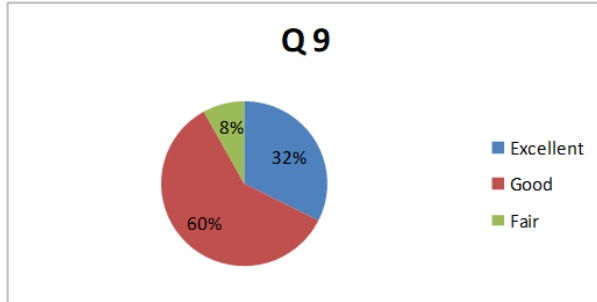


Figure 9. The chart of student teachers' knowledge on skills and strategies to make use of mobile device and their applications for teaching English

The result of the ninth statement is 32% excellent, 60% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at skills and strategies to make use of mobile devices (e.g. smartphones, tablets, etc) and their applications for teaching English, and 8% have fair knowledge.

Based on the result o the chart above, it is found that student teachers had good knowledge in approaches ICT in language and teaching English, various forms of ICT tools and applications which are accessible for use in teaching English, how to use ICT tools, theories and instructional models of ICT integration, skills and strategies to make use mobile devices for teaching English. So that student teachers can make teaching and learning process more effective. As cited in Singh & Chan, 2014, it was explained that using ICT in teaching and learning builds an effective learning environment, thus transforming the overall teaching and learning process, where, the students deal with knowledge actively, in a self-directed and constructive way. Moreover, the students can be more interested in joining the class.

*Student teachers' knowledge on ICT online applications*

*Statement: I know how to conduct online learning using an online learning platform or LMS (Learning Management System) such as Moodle, Edmodo, Schoology, Backboard Canvas, G-Classroom, and Quipper.*

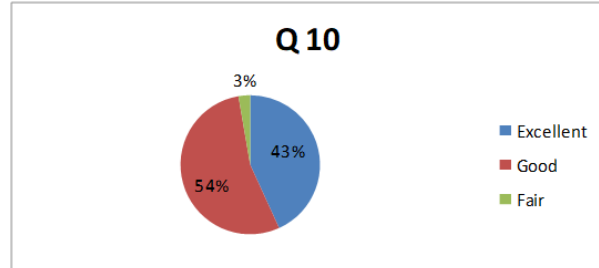


Figure 10. The chart of student teachers' knowledge on how to conduct online learning using an online learning platform or LMS

The result of the tenth statement is 43% excellent, 54% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to conduct online learning using an online learning platform or LMS (Learning Management System) such as Moodle, Edmodo, Schoology, Backboard Canvas, G-Classroom, and Quipper, and just 3% have fair knowledge.

*Statement: I know how to use more sophisticated ICT tools such as interactive whiteboard, robotic appliances, and virtual reality glasses for teaching English*

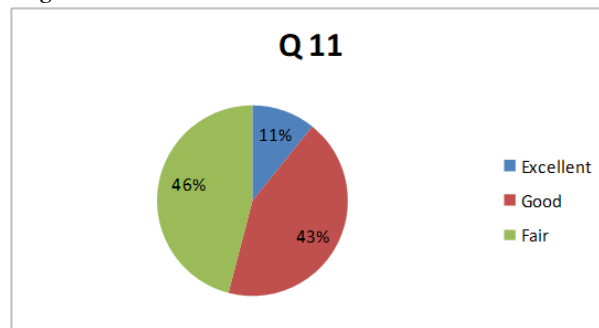


Figure 11. The chart of student teachers' knowledge on how to use more sophisticated ICT tools

The result of the eleventh statement is 11% excellent, 43% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to use more sophisticated ICT tools such as interactive whiteboard, robotic appliances, and virtual reality glasses for teaching English, and 46% respondents have fair knowledge.

*Statement: I know how to use some educational applications/games for teaching, such as Cartoon movie maker, Kahoot it, photo-story, Utell-story, Voki, Toondo, etc.*

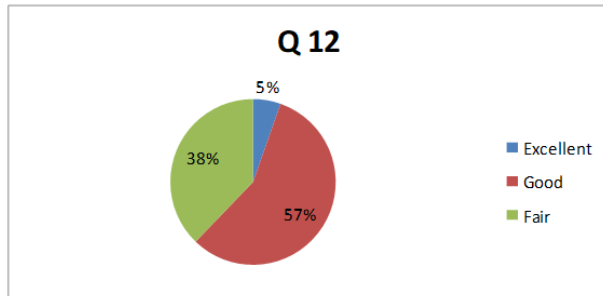


Figure 12. The chart of student teachers' knowledge on how to use some educational applications/games for teaching

The result of the twelfth statement is 5% excellent, 57% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to use some educational applications/games for teaching such as Cartoon movie maker, Kahoot it, photo-story, Utell-story, Voki, Toondo, etc., and 38% respondents have fair knowledge.

*Statement: I know how to use social media applications (Instagram, Facebook, YouTube, Messenger, WhatsApp) for language teaching and learning purposes*

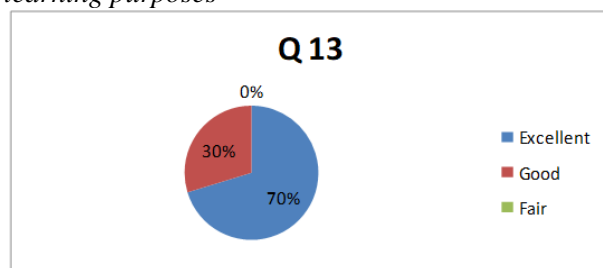


Figure 13. The chart of student teachers' knowledge on how to use social media applications for language teaching and learning purposes

The result of the thirteenth statement is 70% excellent, 30% good. From the result it's indicate that all of the respondents have good knowledge (good and excellent) at how to use social media applications (Instagram, Facebook, YouTube, Messenger, WhatsApp) for language teaching and learning purposes.

*Statement: I know how to use ICT applications for online discussion board (Brainstorm, Realtime Board, Padlet, Popplet, etc) and video conferencing (Skype, Google Hangouts, Net Meeting, etc.)*

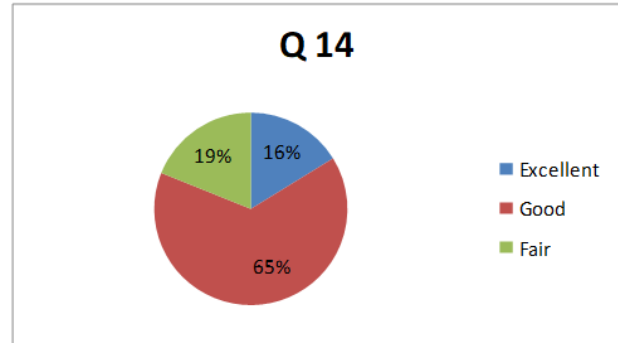


Figure 14. The chart of student teachers' knowledge on how to use ICT applications for online discussion board and video conferencing

The result of the fourteenth statement is 16% excellent, 65% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to use ICT applications for online discussion board (Brainstorm, Realtime Board, Padlet, Popplet, etc) and video conferencing (Skype, Google Hangouts, Net Meeting, etc), and 19% respondents have fair knowledge.

*Statement: I know some ICT applications that I can use to give online assignment to my students (Google doc, Emails, Blogs, Canva, Storyboard, Screencastify, etc)*

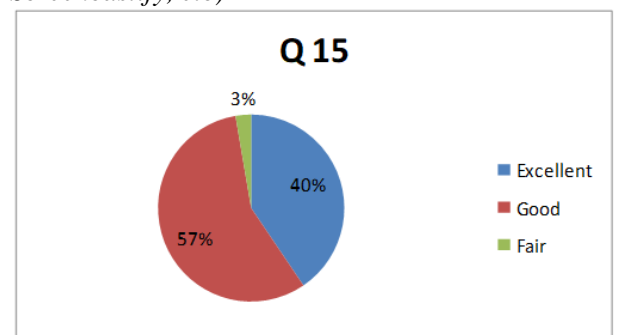


Figure 15. The chart of student teachers' knowledge on ICT applications that can use to give online assignment to the students

The result of the fifteenth statement is 40% excellent, 57% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at ICT applications that I can use to give online assignment to my students (Google doc, Emails, Blogs, Canva, Storyboard, Screencastify, etc), and just 3% respondents have fair knowledge.

*Statement: I know how to use some ICT tools and applications for doing assessment and evaluation of the students' progress (ED-puzzle, Quizlet, Socrative, ForAllRubrics, etc.)*

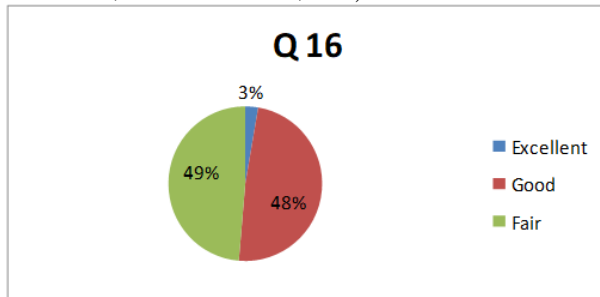


Figure 16. *The chart of student teachers' knowledge on how to use ICT tools and applications for doing assessment and evaluation of the students' progress*

The result of the sixteenth statement is 3% excellent, 48% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to use some ICT tools and applications for doing assessment and evaluation of the students' progress (ED-puzzle, Quizlet, Socrative, For All Rubrics, etc.), and 49% respondents have fair knowledge.

Based on the chart above, it is found that student teachers had good knowledge in how to conduct online learning using digital platform, how to use education games for teaching, how to use ICT applications for online discussion board and video conference, and knowledge of ICT applications to give assignment. They had an excellent knowledge in how to use social media applications for language teaching and learning purposes. They had fair knowledge in how to use more sophisticated ICT tools and how to use some ICT tools and applications for doing assessment and evaluation of the students' progress. The student teachers can integrate the online learning using digital platform. They also can engage the students to join the games before the learning process started. It can be used as a beginning activity to inspire students motivate in learning process.

*Student teachers' ethics of using digital information*

*Statement: I know the ethics of using digital information in various language teaching and learning context*

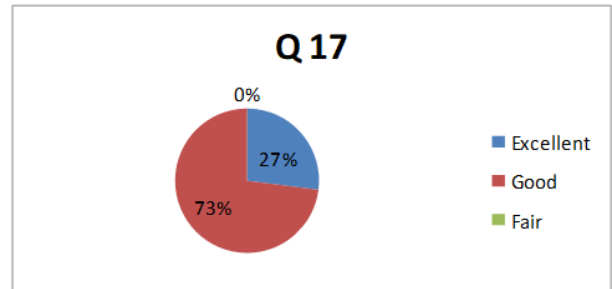


Figure 17. *The chart of student teachers' knowledge on the ethics of using digital information in various language teaching and learning context*

The result of the seventeenth statement is 27% excellent, 73% good. From the result it's indicate that all of the respondents have good knowledge (good and excellent) at the ethics of using digital information in various language teaching and learning context.

Based on the chart above, student teachers at English Department UNIKAL had a good ethics of using digital information in various language teaching and learning context.

*Student teachers' knowledge on class management skills*

*Statement: I know the right and proper time of using ICT in language teaching and learning context*

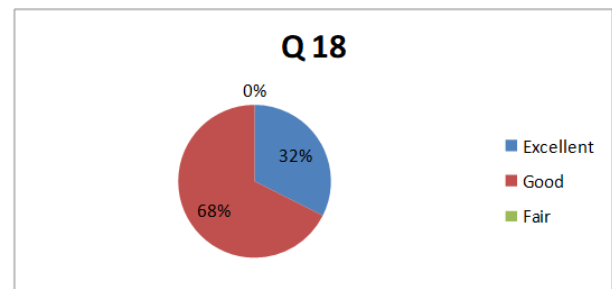


Figure 18. *The chart of student teachers' knowledge on right and proper time of using ICT in language teaching and learning context*

The result of the eighteenth statement is 32% excellent, 68% good. From the result it's indicate that all of the respondents have good knowledge (good and excellent) at the right and proper time of using ICT in language teaching and learning context.

*Statement: I know how to lead or give instructions to my students in using ICT tools and applications during the teaching and learning process*



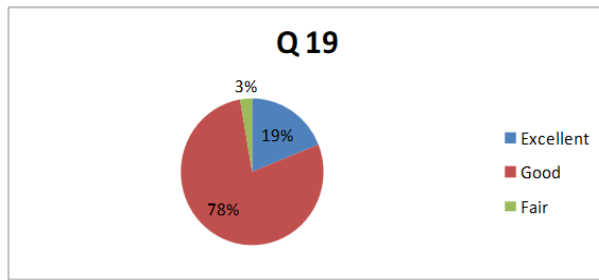


Figure 19. The chart of student teachers' knowledge on how to lead or give instructions to my students in using ICT tools and applications during the teaching and learning process

The result of the nineteenth statement is 19% excellent, 78% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to lead or give instructions to my students in using ICT tools and applications during the teaching and learning process, and just 3% have fair knowledge.

Based on the chart above, it is found that the student teachers had a good knowledge on class management skills.

*Student teachers' knowledge on solving the problem in implementation of ICT in ELT*

*Statement: I know how to solve technical problems related to implementation of ICT tools and applications in ELT*

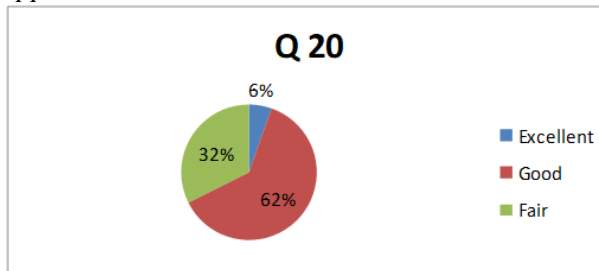


Figure 20. The chart of student teachers' knowledge on how to solve technical problems related to implementation of ICT tools and applications in ELT

The result of the twentieth statement is 6% excellent, 62% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to solve technical problems related to implementation of ICT tools and applications in ELT, and 32% have fair knowledge.

*Statement: I know how to make use of ICT to solve teachers' problem in teaching language*

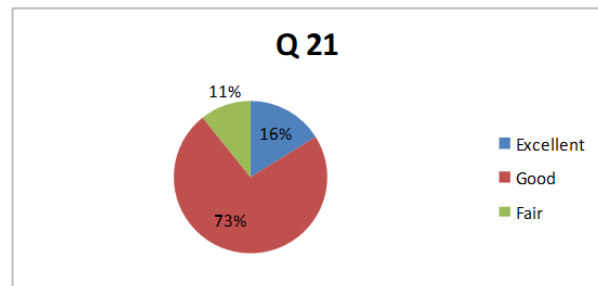


Figure 21. The chart of student teachers' knowledge on how to make use of ICT to solve teachers' problem in teaching language

The result of the twenty first statement is 16% excellent, 73% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to make use of ICT to solve teachers' problem in teaching language, and 11% have fair knowledge

*Statement: I know how to make use of ICT to solve students' problem in teaching language*

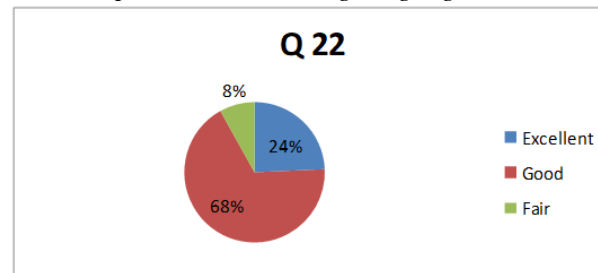


Figure 22. The chart of student teachers' knowledge on how to make use of ICT to solve students' problem in teaching language

The result of the twenty second statement is 24% excellent, 68% good. From the result it's indicate that majority of the respondents have good knowledge (good and excellent) at how to make use of ICT to solve students' problem in teaching language, and 8% have fair knowledge

Based on the chart above, it is found that student teachers in English Education Department UNIKAL had good knowledge in how to solve technical problems related implementation of ICT tools and applications, how to make use of ICT to solve teachers and students' problem in teaching language.

*Discussion*

From the finding above, the researcher believes that the greater the year of study, the more positive were their perceptions. It is in line with the study conducted by Niokolopoulou (2019) whereas the

skills and strategies most reported were that they will use computers (high percentage of agreement, over 70%) in their classrooms for the extension of children's vocabulary and the motivation of children to read and to like reading. Students perceived as major barriers the technical support and the availability of resources. Based on findings above, the similar TPACK framework would be discussed partially as Fathi and Yousefifard (2019); Aniq and Drajiati (2019) and also Inderawati (2021) obtained from the survey indicated that most EFL students perceived that their EFL teachers excelled in four components of TPACK such as technological knowledge (TK), pedagogical knowledge (PK), content knowledge (CK), and pedagogical content knowledge (PCK), but the teachers were perceived to be relatively less proficient in the other three components of the scale such as technological content knowledge (TCK), technological pedagogical knowledge (TPK), and TPACK. The results suggest that Iranian EFL teachers may require further training in these latter elements of the TPACK to gain the required proficiency to integrate technology more effectively into their language classrooms. This research would discuss further as follows.

#### *Technology Knowledge (TK)*

It shows in student teachers' knowledge of basic ICT tools and applications issue. This issue under this domain received result "excellent" from the respondents. It can be implied that student teachers' perceived knowledge of basic ICT tools and applications was proficient.

#### *Content Knowledge (CK)*

It shows in student teachers' knowledge of ICT online application issue. This issue under this domain received result "good" from the respondents. These finding suggested that student teachers had sufficient perceived knowledge in various lesson contents.

#### *Pedagogical Knowledge (PK)*

It shows in student teachers' knowledge of theories, skills, strategies of ICT tools applications, ethics of using digital applications and class management skills issues. All issues under this domain received result "good" from the respondents. It can be implied that student teachers had sufficient knowledge on those issues.

#### *Pedagogical Content Knowledge (PCK)*

The result from the respondents in theories, skills, and strategies of ICT tools and applications issue is "good". These findings implied that respondents' perceived knowledge of the pedagogies and teaching practices was sufficient.

#### *Technological Content Knowledge (TCK)*

Respondents suggested that their knowledge in this domain was sufficient, with basic knowledge in ICT basic tools and online applications issues. Most of the student teachers had possession of mobile phones and computers which can be used to gather and analyze data or information about a specific content. Regarding the issues related to facilities and technical expertise they sometimes encountered, they either asked for help from technicians or colleagues. Many of them also agreed with the importance of attending training to enhance their skills in using ICT in learning and teaching Pardede (2020).

#### *Technological Pedagogical Knowledge (TPK)*

On the aspect of TPK, student teachers revealed that they had sufficient understanding of how teaching and learning changed when particular technologies were used. This domain covered student teachers' knowledge of theories, skills and strategies of ICT tools and applications and student teachers' knowledge of solving problem related implementation of ICT in teaching and learning process with "good" description. This entailed that student teachers had knowledge on the use of technologies to improve teaching and learning using online platform.

#### *Technological Pedagogical Content Knowledge (TPCK)*

This domain was seen as the intersection of all three bodies of knowledge. Understanding of this knowledge could go above and beyond understanding technology, content, or pedagogy in isolation, but rather as an emergent form that understands how these forms of knowledge interact with each other (Koehler and Mishra, 2008). Most of the issues under this domain also got a descriptive rating of "good" which revealed that respondents had sufficient in this domain. The way student teachers viewed the interrelationship of content, pedagogy and technology result to their confidence in choosing and utilizing technologies

that would enhance their teaching and learning of a specific content or topic.

## CONCLUSION

Based on the findings and discussion in previous chapter, the researcher puts forward the following conclusion:

The student teachers had perceived knowledge on integrating ICT in terms of the student teachers' knowledge on basic ICT tools and applications, student teachers' knowledge on theories, skills, strategies of ICT tools and applications, student teachers' knowledge on ICT online applications, student teachers' knowledge on ethics of using digital information, student teachers' knowledge on class management skills and student teachers' knowledge on solving the problem in implementation of ICT in ELT. This can be associated with their learning experiences while they are attending classes in college and when they practice in ICT in ELT course in class.

The student teachers had good perceived knowledge on integrating ICT. They not only knowing the theories of the integrating ICT, but also, they can implement it to the teaching and learning process. The student teachers had sufficient knowledge related integrating ICT which they have experienced when they practice to use ICT tools and applications in classroom. The highest indicator is knowledge on right and proper time of using ICT in language teaching and learning context. The poorest indicator is knowledge on how to conduct online learning using digital platform, how to use education games for teaching, how to use ICT applications for online discussion board and video conference, and knowledge of ICT applications to give assignment.

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