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Dissertation Project

ICT as a Tool for Collaborative Learning Aimed at Teaching EFL

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Declaration of Originality

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“I declare that ICT as a Tool for Collaborative Learning Aimed at Teaching EFL is my own work and that all the sources in any form (e.g., ideas, figures, texts, tables, etc.) that I have used or quoted have been indicated and acknowledged by means of complete references.”

Avan Kamal Aziz

Signature

10.02.2023

Date

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Abstract

In recent years, the concept of teaching English as a foreign language (EFL) has undergone significant changes for various reasons, such as the freedom to create school curricula, modern school equipment, and quality preparation of teachers-to-be. The innovative perception of education includes activating and collaborative teaching methods often realised through information and communication technologies (ICT). ICT creates new learning possibilities; collaborative learning (CL), in particular, is no longer limited by classroom walls. Modern technologies enable learners to overcome such learning barriers as geographical distance or communication time. Consequently, a new space for international student cooperation is opened; students are able to communicate in a foreign language by solving authentic problems—which is a natural way of developing students' foreign communicative skills.

The main aims of this study are to investigate the use of ICT as a tool for CL aims at teaching EFL and simultaneously prove the impacts of using ICT as a tool for CL to improve EFL teaching and learning in State universities in Kurdistan. Besides, finding out the barriers of using ICT with the use of CL in teaching EFL and what strategies the university teachers implement to eliminate the barriers of using ICT with the use of CL in teaching EFL. With the wish to improve the level of EFL teaching performances, students' language learning performances through bringing teachers-students and students-students together to work interactively and collaboratively, which in turn promotes the reform and development of the EFL teaching and learning process. For this purpose, the researcher conducted qualitative and quantitative research instruments like interviews, class observation and post-observation interviews to collect the research data. The participants are the EFL University teachers of the English Language department in Kurdistan-Iraq.

In line with the interview's findings, even though EFL university teachers admit the benefits of ICT in CL for EFL teaching and learning, providing the barriers that prevent teachers from using ICT in CL and suggesting strategies to deal with the barriers. In contrast, the findings of the class observations revealed that using ICT in CL among teachers is rare. For this purpose, the researcher conducted post-observation interviews with teachers to find out the reasons behind the rare practice of ICT in CL among them. Based on the results, the most frequent obstacles are: This is due to the extrinsic and intrinsic challenges that they encounter, including the most frequent obstacles: 1) a lack of ICT devices and software, 2) a lack of time and a heavy workload, 3) a lack of teachers' ICT proficiency, 4) a lack of an internet connection, 5) a need

for extensive time and effort to integrate ICT into CL, 6) a lack of technical support, and 7) a lack of ICT training programs. Whereas the less common barriers include: 1) ICT use in CL makes it difficult for teachers to control and manage the class while they are teaching, 2) a lack of a pedagogical model for using ICT in CL, 3) a lack of administrator support, 4) a lack of motivating factors to encourage teachers to use ICT in CL, 5) lack of students' ICT competence, 6) lack of financial support, and 7) a few teachers believe it is more suitable for high school students than university students.

Some recommendations have been proposed in the final part of the study's conclusion. That the Kurdistan authority, the Ministry of higher education, the university administrator, and university EFL teachers should follow to improve the interest in integrating ICT more effectively in CL. Also, to figure out ways to eliminate the barriers and help the teachers practice ICT in different ways of teaching for different educational purposes.

Key words: information and communication technology (ICT), online collaborative learning (OCL), ICT integration into CL in teaching EFL. and teaching and learning English as foreign language (EFL), EFL university teacher, ICT and CL.

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List of Abbreviations

ICT: Information and Communication Technology

EFL: English as a Foreign Language

IT: Information Technology

VoIP: Voice Over IP

WWW: World Wide Web

UNO: United Nations Organization

CL: Collaborative Learning

CoL: Cooperative Learning

EPUB: Electronic Publication

PDF: Portable Document Format

PC: Personal Computers

NTIA: National Telecommunications and Information Administration

DigComp: Digital Competence

DigLit: Digital Literacy

DigTech: Digital Technology

CK: Content knowledge

PK: Pedagogical knowledge

TK: Technology knowledge

TCK: Technological Content Knowledge

PCK: Pedagogical Content Knowledge

TCK: Technological Pedagogical Knowledge

TPACK: Technological, Pedagogical, and Content Knowledge

ELLS: English Language Learners

ELL: English Language Learning

ELT: English Language Teaching

ZPD: Zone of Proximal Development

OCL: Online Collaborative Learning (Chapter 3)

CALL: Computer-Aided Language Learning

RSS and ATOM: Really Simple Syndication and Atom Syndication Format

CSCW: Computer-Supported Collaborative Work

CSCL: Computer-Supported Collaborative Learning

GA: Google Apps

EduSet: Educational Settings

OECD: Organization for Economic Co-operation and Development

TEFL: Teaching English as a Foreign language
TESOL: Teaching English to speakers of other languages
SA: Strongly Agree
SWA: Somewhat Agree
NANDA: Neither Agree nor Disagree
SWDA: Somewhat Disagree
SDA: Strongly Disagree
MAFNR: Meets expectations in few or no respects
MESR: Meet expectations in some respects
MEMR: Meets expectations in most respects
MEAR: Meets expectations in all respects
EEAR: Exceeds expectations in all respects
VGA: Video Graphics Array

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Introduction

Education brings learning to human societies; it has been a cardinal influence for downsizing illiteracy, social preservation, and economic growth. Before the emergence of technology, the educational system was rigid. Teachers were central in the classroom, all knowledge went only from teachers to students, and students were listening, watching, and recording notes almost all the time. The knowledge that was delivered was derived from the provided information in the textbooks. The typical classroom setup was where the teacher composed the information on the chalkboard, and students rewrote what was on the board in their notebooks. The system was irritating and monotonous, and the way that education was performed needed to make more changes, and still, it was teacher-centred. In addition, due to financial constraints, most teachers did not have the chance to travel to other countries to enrol in training courses to develop their teaching quality. In terms of the system of evaluation in educational settings, it lacked identical standards for assessment. Accordingly, the results were in a haphazard state. The students were assessed based on their current performance without any comparison with their previous results. It is obvious that actual betterment can be attained by evaluating the learner's mistakes in the previous assessment and suggesting ways to correct them (UKEssays, 2018).

However, integrating technology into education has transformed the education system from one stage to another. It has optimized the way teachers deliver information from teacher-directed towards student-centred models. Technology has made handling pictures, sound, storage, processing, and presentation of information more straightforward than before (Kaur, 2015). Since E-learning refers to learning through the Internet, learners can have a flexible and personalized way to learn. Students have the opportunity to learn at any time, anywhere, which significantly contributes to lessening teaching and learning costs (Zhang & Nunamaker, 2003). With the use of ICT, teachers can improve the learning atmosphere and make it more encouraging and engaging for the learner than in a traditional learning environment (Sabancı, Ozyıldırım & Imsır, 2014). Sometimes students face difficulty in comprehending a concept in traditional learning environments. However, technology integration can help learners comprehend the concept well since teachers prepare their lessons in a more strategic manner by entailing various sorts of text, activity models, and interactive controls for students.

Additionally, the incorporation of technology has bridged communication gaps. In both traditional and virtual classrooms, with online collaboration tools, everyone is able to form a community where teachers assign projects to their learners. In this community, learners have a

chance to ask for clarification, if any. So, having such an online collaborative community provokes learners to interact easily with each other regarding their subject concerns, too (Morison, 2018).

Technology provides many educational assistances, especially for language learning. Through the presence of technology, learners are familiarized with the Internet, which enables them to connect and communicate with native speakers, whose knowledge may not be accessible in-class activities in general. In other words, students are given opportunities to be exposed to more interesting, engaging, and communicative instruction in school. Hence, implementing e-learning becomes an alternative to teaching techniques that empower students to become more active and involved users of the language. Another significant point about technology is that it enables teachers to deliver lessons more effectively in language learning classes. Technology development has stimulated teachers to be more creative in practising technology to reach students' learning outcomes (Rahmawati, 2016). Also, it enables teachers to dispense online instruction, which can be delivered anytime and anywhere via a wide range of electronic learning solutions such as "Web-based courseware, online discussion groups, live virtual classes, video and audio streaming, Web chat, online simulations, and virtual mentoring" (Sriram, 2016, p.56). Therefore, the concept of traditional education no longer fits well with the modern world of life-long learning, in which the roles of teacher, learner, and curriculum are adjusting. Teaching and learning are not anymore restricted within conventional classrooms. Learning methods need to become more applicable and flexible to meet the student's needs (Zhang & Nunamaker, 2003).

Chapter 1

1.1 Information and communication technology and some major concepts, and a short historical overview

There are various conceptions related to the term ICT. Some people understand the concepts of ICT and mastering its basic skills as a portion of the core education, alongside reading, writing, and numeracy. While some others believe ICTs generally belong to 'computers and computing-related activities. Since this is not our focus, it cannot be denied that computers and their application have played a prominent role in today's information management; other technologies or systems also comprise the phenomenon commonly referred to as ICTs. As reported by Pelgrum and Law, around At the end of the 1980s, "IT" took the place of the word "computers" (information technology) as an indication to switch the focus from computing technology to the capability to store and retrieve information. Then, this was followed by the 'ICT' (information and communication technology) expression, which was introduced around 1992 when email became available to the public (Pelgrum & Law, 2003).

ICT usually, is used as a synonym for IT. However, ICT is a more general term that emphasizes "the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as the necessary software, storage- and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information". In other words, we can get to the point that ICT comprises IT and telecommunication, broadcast media, all sorts of audio and video processing and transmission, and network-based control and monitoring functions (Tamilselvan, Sivakumar, & Sevukand, 2012, p. 15).

Within a short period, ICTs have become one of the fundamental building blocks of contemporary society. It enables people to communicate with each other from different countries using various technologies like instant messaging, Voice Over Internet Protocol (VoIP), and video-conferencing. Additionally, there are various social networking websites that enable users from all over the world to stay in touch and interact with each other on a regular basis; one example is Facebook (Tamilselvan, Sivakumar, & Sevukand, 2012). Also, the educational field has been influenced by technology, especially in teaching, learning, and research. A growing number of researches have proven the impacts of ICT on improving the quality of education (Ul-Amin, 2013). Technology has been practised more widely in this contemporary society, especially for teaching and learning purposes. Up-to-date technology

provides enormous tools that can be used in classrooms to enhance the quality of teaching and learning (Ghavifekr, Abd Razak, Ghani, Ran, Meixi & Tengyue, 2014).

Moreover, ICT has the potential to develop, accelerate, enhance and expand skills; inspire and engage learners; help relate school experience to work practices; build economic viability for employees of tomorrow and improve teaching; and help schools change (Ul-Amin, 2013). ICT has the potential to prepare learners for 21st-century living as well. Through learning ICT skills, students are prepared to address future challenges based on proper understanding. It is believed that using ICT helps learners optimize their competencies needed for today's globalization. It is because ICT helps students improve their skills, raise their motivation, and extend their knowledge and information (Ghavifekr, Abd Razak, Ghani, Ran, Meixi & Tengyue, 2014).

1.1.1 ICT and Communication

ICT refers to the technologies which offer access to information via telecommunications. What makes ICT differ from IT is that ICT focuses primarily on communication technologies, which entails “the Internet¹, wireless networks, cell phones, communication hardware and software like computers and their programs; earth-orbiting satellites and satellite dishes; audio and video cable networks; web cameras and web TVs; modems and Scanners; fixed, wireless, and mobile telephone cum video phone systems; video text and teleconferencing; and the world wide web (WWW)”. The emergence of ICT has provided society with new communication possibilities. Currently, everyone can interact with others from different parts of the world through videos, instant messaging, and social media sites like Facebook and Twitter, which enable people to stay in touch, communicate and share information easily with others around the world. The Internet and computers have made the communication process very easy and fast and have also brought people together. At a click of a button, anyone can quickly know what is happening in other parts of the world. Further, ICT has positively affected how we communicate in our daily lives since it has made our communication more straightforward and cheaper. It has also provided us with various ways of communicating without face-to-face meetings, and many people prefer to only chat over the Internet or by email because that is simpler now than planning to meet up (Njau, 2014).

¹ “the Internet is a confederation of thousands of computers from various sectors of society such as education, business, government and the military. It is a network of thousands of computer networks” (Singhal (1997) as quoted in Koblihová, 2018, p. 10).

It is essential to know that ICT is not just about computers and the Internet but also about many different devices like cell phones, tablets, etc. New technologies have changed how we interact, live, and work. Also, ICT in education is a tool that has played a significant role in bringing the school and community closer together. In Figure 1, we can see several devices which enable us to comprehend better the society where we live: (Koblihová, 2018).

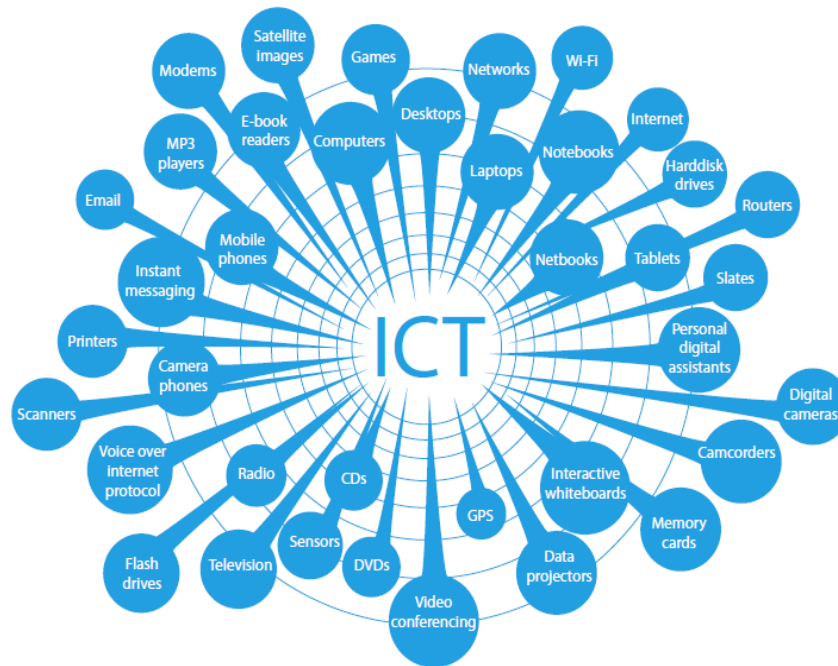


Figure 1: ICT Devices retrieved from (Anderson, 2010, p.4).

Therefore, ICT has dispensed with a number of new forms of communication in the education system. The educational process becomes an informational and communicational process, and at the same time, education becomes multimedia orientated. Teachers are no longer restricted to the use of blackboard and chalk; instead, they are in an open, interactive and technical environment (Tatković, Šehanović & Ružić, 2006). They are using interactive digital whiteboards; learners are using their smartphones or other learning devices during classroom time, and the "flipped classroom" model, where students watch computer-based lectures at home and deploy classroom time to involve more interactively (Stojković, 2018, p.168).

The advent of technology has contributed to the birth of lots of new forms of online communication, such as blogs, videoconferences, and social networking. The growth in electronic communication has helped to eradicate time and distance barriers to communication (Fenell, n.d.). This has enabled teachers to find innovative ways to use technology to provide regular instruction and feedback and interact with their students not even in class but also outside class. ICT helped teachers to stay better connected with students after classroom and

office hours and more closely monitor learners' progress inside and outside the classroom (TechThoughtStaff, 2013). Furthermore, ICT caters for opportunities for many learners to enrol in courses provided by outside institutions rather than locally located ones. These opportunities offer such benefits as extended courses and diverse class groups composed of students of various backgrounds, cultures, and perspectives (Oliver, 2002).

Nowadays, most educational settings use a different set of ICT tools to communicate, create, disseminate, store, and manage information (Stojković, 2018). It has formulated the field of cultural education by offering learners the opportunity to talk to learners from different cultures. Via computer-mediated communication, such as instant messaging and emails, learners can learn about other cultures firsthand by communicating with learners of other cultures. Computer-mediated communication often helps make learning more comfortable by allowing students to access a vast amount of information, whether in a classroom, in an educational setting or at their own home (Fenell, n.d.). There is also evidence that computers can be used efficiently to support students' discussion and enhance their talk when working on collaborative tasks in small groups, and even 'directive' software can support discussion and reasoning. For this purpose, teachers may need to teach students how to interact with each other while practising computers collaboratively to achieve successful and desired learning. Using ICT to encourage discussion in small groups and whole-class settings helps the development of students' thinking and understanding across the curriculum in several subjects and with a range of outcomes (Higgins, 2003).

Last but not least, ICT has affected the improvement of teacher-student communication. It assists teachers in communicating properly with their students and bridges the gap between them (Bhattacharjee & Deb, 2016). In other words, it improves student-teacher interaction by enabling teachers to share knowledge more effectively with students in the latest wave of technical development. Teachers are able to use this opportunity to share knowledge and enhance interaction with students, in addition to getting assignments from students and sending them back online. Moreover, ICT develops global interaction. Through the use of internet technology, learners can improve their understanding and get familiar with other cultures and access information from all parts of the globe, thus ICT opens up ways for learners to interact with a wide variety of other cultures and well-rounded content (Ngussa, Makewa, & Kuboja, 2015). So, the availability of advanced technology has made knowledge and communication effortless, which caused the emergence of the term ICT to depict the closely intertwined relationship of technology, communication, and technology. A real example of this is the

smartphones and tablet computers that increase the dependency of people and learners on ICT (Chouthaiwale & Alkamel, 2018).

1.1.2 ICT and Education

ICT is an accepted component in all our lives and has a vital role in today's education, but still, there has been much debate about the use of ICT in education, its impacts on teaching and learning, and its need to be adopted to ensure whether the ICT enriches students' learning experiences and performances. Therefore, ICT in language teaching has been the educators' and researchers' focus of attention. In education, particularly in language teaching, teachers tried hard to make use of ICT in teaching language to adjust and renew their methods of teaching to be compatible with today's modernized communities in the current digital world. According to Yusuf, ICT has played a significant role in education and certainly affected teaching, learning, and research areas. ICT can also develop teaching and learning via its dynamic, interactive, engaging content and offer opportunities for individualized instruction. ICTs have the capability to innovate, accelerate, enrich, and deepen learners' skills, motivate and engage learners, provide more student-centred learning settings and strengthen teaching, and help educational institutions positively change (Davis & Tearle, 1999; Lemke & Coughlin, 1998; as cited in Yusuf, 2005). Additionally, ICT helps learners in accessing digital information, supports self-directed learning, encourages collaborative learning in a distance-learning environment, affords opportunities to improve critical thinking skills, generates a creative learning environment, develops teaching and learning quality, underpins teaching by enabling access to course content (Chouthaiwale & Alkamel, 2018).

As suggested by several researchers, ICT will be an essential part of education for the next generation (Bransford, Brawn, & Cocking, 2000; Grimus, 2000; Yelland, 2001, as cited in Bingimlas, 2009). Current technology enhances teaching and learning in the classroom (Lefebvre, Deaudelin & Loiselle, 2006). As Dawes reports (2012), today's technologies have the potential to support instruction across the curriculum and offer chances for effective interaction between teachers and learners in ways that have not been feasible before. For instance, since new technology occurs, communication between teachers and students is constantly pursued both in and outside the class, dramatically impacting teaching and improving students' learning.

Currently, there is a momentous change in the teaching and learning process at universities in the era of ICT. A great number of universities accommodate classes with the use of e-learning as a form of improving face-to-face classes and as a means of conveying course

content interactively (Fallows & Bhanot, 2005). E-learning provides effective, new, alternative ways of teaching and learning that increase learners' capability to learn and improve new skills in the target language (Sife, Lwoga, & Sanga, 2007).

With the occurrence of ICT (e-learning), numerous changes and enrichment have taken place in teaching and learning in higher education, especially concerning educational delivery and support processes (Bhuasiri, Xaymoungkhoun, Zo, Rho, & Ciganek, 2012). One of the most vital aspects of e-learning is causing improvements even in the teaching and learning processes (OECD, 2005). ICT-supported learning has played a fundamental role in opposing the challenges and difficulties of interactive and lifelong learning (Richards, 2006; Voogt & Plomp, 2010, as cited in Deerajviset & Harbon, 2014). ICT could ameliorate traditional teaching methods, boost learners' learning experience, and develop the effectiveness of learning on performance (Pedro, 2005). Nevertheless, deciding on e-learning effectiveness is not easy since the policy, financial, and administration aspects change from institution to institution, which has on the shape of e-learning provision in higher education (OECD, 2005 as cited in Deerajviset & Harbon, 2014).

1.1.3 ICT and Language Learning and Teaching

Today's learning environment needs improvement since our learners are fully immersed in the Internet and digital technologies in everyday life. However, this improvement demands more input that is challenging to be provided with traditional classroom materials. The most proper key for this purpose is ICT which makes effective change and innovation in education. Nowadays, ICT in education is quite popular and widespread and finding a country that is not involved in incorporating ICT into its educational system is challenging (Akdemir, 2017). The use of ICT has become quite important in most educational settings. Its use enables both teachers and students to improve their educational efficiency. It has become a vital tool for reforming and improving education (Ammanni & Aparanjani, 2016).

ICT is an effective way for learners to become actively involved in their language learning process. Using ICT offers the learners real-life contact and exposure to the communities and cultures of the peoples and countries where the new language is spoken. It helps learners to access and study knowledge around the world as well. The use of ICT, particularly email, blogs, and video conferencing, assists the progress of the interaction and communication of the learner with native speakers of other communities and enables them to practice the language for actual purposes and in authentic contexts. It also supports and integrates literacy skills, enhancing interactive teaching and learning styles and providing many

creative opportunities. Whether the task is completed at home, at school/university, or on a trip abroad, it can be posted to a learning platform that enables teachers, parents, and learners to reflect and celebrate progress.

ICT has the potential to support non-native language teachers by accessing native speaker models that can be used to promote language learning or to increase the spectrum/range of voices in the classroom. Further, there is a growing number of effective software to reinforce primary language teaching and learning. Carefully chosen and creatively used, it helps teachers and learners to participate in activities in ways that are not feasible with printed materials. Using a learning platform, ICT provides training programs to help teachers and ensure that support is sustained in the coming years as more teachers are trained to teach a new language at the primary level (Ghasemi & Hashemi, 2011).

The application of ICT affords a number of communication opportunities between peer learners. It enables learners to exchange and share information in an authentic context; they can take part in blog discussions, work in teams on different projects, exchange emails, browse for information, etc., through the use of authentic materials that are provided by the Internet, learners can achieve a better insight into the culture of the country and community whose language they study. ICT has different effective impacts on learners' aspects of the learning process. To illustrate, ICT enhances learners' motivation, personal commitment and engagement, independent learning, learner collaboration and communication, which are indispensable, and learners' attainment and outcomes. Furthermore, ICT enables language learners to use the language they are learning in authentic contexts and meaningful ways. ICT use in a language classroom encourages learners and affords opportunities for cooperation and collaboration with one's peers (Chouthaiwale & Alkamel, 2018). It helps them to be more independent, self-study learners and increase their partaking in activities that consequently improve their comprehension (Sabancı, Ozyıldırım & Imsır, 2014).

Muehleisen (1997) claims that "learning to use computers provides a strong intrinsic motivation for learning English" (¶2). Most students are excited to use computers in their educational setting since they expect computers and their language skills to be used in their future careers. Therefore, students also have positive attitudes regarding using technology to learn and develop language skills (as quoted in Koblihová, 2018). Bransford, Brown, and Cocking (2000) believe that ICT helps students improve the skills required for today's globalization. It helps students improve their skills, raise motivation, and expand their knowledge and information (as cited in Ghavifekr, Abd Razak, Ghani, Ran, Meixi, & Tengyue,

2014). Accordingly, language teachers are now not only trying to teach grammar rules to the students but also to help them achieve apprenticeship in new discourse communities. This is achieved by generating opportunities for authentic and meaningful engagement and communication both inside and outside the classroom by catering to students with the resources for their own social, cultural, and linguistic discovery. ICT is a powerful tool for this purpose, enabling students to access international communication via online environments. Through using technology in the language classroom, teachers can well-prepare students for the international cross-cultural foreign experiences that are increasingly needed for academic, vocational, or personal success (Ghasemi & Hashemi, 2011).

Each teacher can choose his/her way of teaching according to the aims and objectives of the curriculum, the learners' needs, and available materials and technology. ICT assists teachers in creating exercises, activities, and materials that are easily reusable; it is cheaper than face-to-face teaching. It also makes it easy to access up-to-date material on every imaginable topic, it provides lots of opportunities for non-native speakers to communicate with native speakers, which is motivating and engaging, and it enables students to study at their own pace, whenever and wherever they want (Smith and Baber (2005) & Stanley (2013) as cited in Koblihová). Furthermore, Attwell and Battle (1999) investigated the relationship between home computing and school results; their findings indicate that students with access to home computers for educational purposes have increased reading and math scores. Also, in his meta-analysis study, Kulik (1994) gets to the point that, on average, students who used ICT-based instruction got scores higher than those without computers. In addition, students learned more in less time and enjoyed their classes more when ICT-based instruction was integrated (as cited in Ul-Amin, 2013).

Integrating ICT in education refers to the use of computer-based communication, which integrates into the everyday classroom instructional processes. Teachers are seen as the leading players in using ICT in their regular classes and training students for today's digital age. This is because of ICT's capacity to cater to a dynamic and constructive teaching-learning environment (Ghavifekr & Rosdy, 2015). ICT incorporation in teaching and learning is seen as a platform where a range of methods and pedagogical philosophies can be implemented. Nonetheless, ICT is more complex as a teaching aid which is why it requires more basic skills from the teachers (Chouthaiwale & Alkamel, 2018). Teachers should know technology is used, and if they want to use it, they should do so in the best possible pedagogical way (Koblihová, 2018). According to Van Lier (2003), "... if [technology] is to be a positive force in education, [it] should not be cast as an alternative to classroom teaching, or as replacing the teacher, but as a tool that

facilitates meaningful and challenging classroom work" (pp. 49-50). So, technology does not substitute professional teachers; it is a tool and is considered an add-on supplement necessary for better teaching and learning. ICT integration is essential because it is not only happening in the school setting but can also be used for teaching and learning even though teachers and students are physically distant (Ghavifekr & Rosdy, 2015).

Implementation of ICT in the language teaching and learning process assists English language teachers and students in accessing the latest sources and information easily and affordably. With the wide variety of teaching and learning materials that are available on the Internet free of charge, teachers can choose the ones that best suit the needs of the students according to their age, level, and skill. Many English language exercises can be found for free on the net, and software can be bought on the Internet or at any store, and some are free. Learners can practice English speaking skills on their IOS devices with Siri on their iPad or iPhone or Assistant on their android devices. There are also plenty of discussion groups for professional growth, interactive reading books for learners, and sound recordings for teachers and learners alike. Learners' having good access to information sources enables them to improve their language learning. In addition, the Internet offers easy and fast access to up-to-date and authentic materials of the target language, stimulating language learners. To illustrate, authentic materials are like "online newspapers, webcasts, podcasts, newsrooms, video clips, or even video sharing websites such as YouTube". Furthermore, another encouraging language learning opportunity of ICT use is that it offers chat rooms and virtual environments such as 'Second Life', which allow learners to practice the written and spoken language without being afraid of error (Floris, 2014, p. 141).

Besides, ICT helps language learners to improve their listening skills due to daily access to audio materials like authentic and software audio and video recordings, podcasts, pronunciation software, etc. Also, the collection of the latest articles from the Internet raises learners' awareness of the language regarding grammar skills, syntax, coherence in committing ideas, etc. Language teachers reported to their learners that ICT helped them to be more engaged, motivated, and attentive during the learning process. Additionally, it increased learners' ability to take notes effectively. In other words, they were likelier to listen to the instructor, understand the message, pick the correct details, and take notes (Houcine, 2011).

Moreover, ICTs are a helpful tool for shy or quiet learners who hesitate to ask their teachers questions or there is challenging information to communicate. It has been shown that using new technology in the learning environment makes learning more student-centred and

enhances the learning process by enhancing teacher/student interaction. Furthermore, ICTs boost CL, improving learners' self-esteem, learning achievement, critical thinking, and student-student interaction. ICTs improve learners' self-assessment as well. The exams mainly test the students' reading and writing skills, neglecting the listening and speaking skills that are necessary for the learners in their future careers. ICTs are appropriate tools for testing the listening capacity via computer-assisted packages such as listening to a dialogue or a passage, answering questions or listening to lectures, and then answering short questions or statements that are true or false. They enable learners to take international exams, as many competitive examinations follow such a pattern to assess their ability to understand (Jayanthi & Kumar).

In accordance with Yunus, Lubis and Lin's study regarding "Language Learning via ICT: Uses, Challenges and Issues", most English language learners agreed that ICT use had helped them, for example, to enrich their vocabulary, to use English better to communicate in their daily conversation, to improve their grammar, to take greater control of their language of learning and improve their writing skills (2009). Also, several pieces of research suggest that incorporating ICT into the English curriculum can develop the four language skills of writing, reading, speaking, and listening. Besides, it supports learners' independent learning, collaboration, creativity, and reflection (Becta, 2003a; Becta, 2003b, VTC, 2003, as cited in Ntongieh, 2016, p. 28). In line with Pasupathi's observation (2012) in learning foreign languages, "the repeated practice with ICT produced better results". Implementing ICT in language curricula "will help students overcome their fear and anxiety of using English" (Koblihová, 2018, p. 15).

Another advantage of ICT during teaching and learning is that it can eliminate communication barriers like space and time. For instance, ICT has played a significant role, in all aspects of our life, especially in education, during the pandemic spread of the Novel Coronavirus (COVID-19). As we experienced, the COVID-19 pandemic has caused people all over the world to live in an environment filled with fear, anxiety, and various concerns. It has disrupted every aspect of human life, including schooling, all over the globe. Due to the rapidity with which it has spread, educational institution closure has become one of the most effective preventive steps. According to a study published by the United Nations Organisation (UNO) in August 2020, the COVID-19 pandemic has caused tremendous disruption of education systems in history, affecting nearly 1.6 billion students in over 190 countries across all continents (Paudel, 2020).

By the same token, different governments have implemented emergency policies focused on suspending classes and closing educational centres to continue teaching practices telematically from homes using ICT to reduce the number of infections (Espino-Díaz et al.). For this purpose, students need to be given an online teaching and learning process that provides a sense of security to keep them involved in learning activities at home, even though face-to-face meetings and interactions are nearly impossible. Lorenzo (2008) claims that in virtual learning environments, interactions between teachers and students, student-to-student interactions, and class dialogues provide opportunities for students to give and receive emotional support, which is vital for student well-being as they deal with the aftermath of a catastrophe or pandemic (Paudel, 2020).

In line with Paudel's study (2020) regarding examining teachers' and learners' perspectives on online education in terms of its benefits, challenges, and strategies during and after COVID-19 in higher education in Nepal. The findings of his study show that in the first issue on the advantages of online education, more than 70% of participants thought online courses were advantageous for encouraging online research, connecting practitioners to the global community, and gaining access to a vast knowledge resource. This result supports Sun and Chen's (2013) argument that online education has the potential to open up new markets for higher education institutions, as well as Finch and Jacobs' (2012) claim that online education decreases travel time and costs while increasing access to and collaboration with experts from around the world. Similarly, more than half of the participants said that online courses benefit them because they offer them flexibility in teaching and learning time and space. They cater for them with authentic and vast resources of materials needed for professional and academic endeavours and teach them self-discipline, which declares what Finch and Jacobs (2012) report that online education benefits students and teachers by enabling them to access courses at their convenience and allowing adjustments to subjects and content needed (Paudel, 2020).

ICT eliminates time constraints for both learners and teachers in education. It also eradicates geographical barriers, as learners can log in from anywhere (Ul-Amin, 2013). In this way, online learning serves the needs of an ever-growing number of students who are unable or unwilling to engage in conventional classroom settings. Plenty of adult learners may appreciate the versatility when they need to balance work, study, and family accountabilities. The wide range of a variety of technology advancements practised by Universities' online programs to improve the interaction between students and instructors, as well as among students in general (Bell & Fedeman, 2013). Further, the nature of anonymity in online education may permit more learners who are unable to attend face-to-face classes due to personal obligations

to engage in online education where they do not physically see each other. Finally, improved technology and software can allow teachers, students, and university administrators to gather data, feedback, and evaluations about their online experiences (as cited in Paudel, 2020).

Another fundamental feature of ICTs is to allow digital resources to be created and developed, such as digital libraries, where students, teachers and professionals can easily access learning material, training material, and research material from anywhere at any time. These facilities allow academics and researchers to network and exchange scholarly material, which avoids duplication of work. Moreover, ICT use not only motivates learners but also motivates teachers. It improves teaching performance and administration. It also optimizes the quality of education through facilitating learning by doing, authentic conversation, directed instruction, self-learning, problem-solving, seeking information and analysis, critical thinking, communication, collaboration, and learning. Furthermore, ICT can serve as a tool for differentiating the curriculum, offering opportunities to adapt the learning content and tasks to the needs and capabilities of each student and provide tailored feedback (Ul-Amin, 2013).

According to Lachica's study in 2015 regarding "Classroom Communication and ICT Integration: Public High School Teachers' Notions", teachers consider ICTs as a driver for change, a way for learning, and an instrument used for teaching and learning. They also view ICTs as a medium for changing and improving classroom communication. They are used to develop how learners learn, and teachers teach in classroom communication. It enables learners in classroom communication to deal with the needs and opportunities in the 21st century. It improves the learners' intellectual sides via CL, fostering creative thinking and communication among students. ICTs have changed the way the teaching and learning process takes place. Teachers are no longer seen as the ultimate source of knowledge but as facilitators of creating knowledge and skills. Through ICTs, learners are transformed from passive learners into active learners. Hence, the teaching and learning process is now more student-centred.

Further, ICTs can be a source for facilitating learning and performing the teaching process. In accordance with some teachers' views, ICTs have offered many opportunities to enhance the delivery of lessons through classroom communication. According to the teachers' statements, using ICT stimulates creative learning in the learners and is a powerful communication channel. Moreover, integrating ICTs in classroom communication facilitates teaching, particularly in illustrating complex lessons. Through ICT, we can have interactive classes to ensure the comprehension of the students, which makes the teaching-learning process for the students more fun. It helps in improving students' eagerness to engage effectively in

class. It also raises students' interest in learning, and they focus more on the lessons. Besides, ICT integration in classroom communication is considered a new medium of instruction. It interests learners to practice it as a tool. It flourishes a new way of doing classroom communication by changing the traditional classroom to a new system of making a more meaningful and improved learning experience.

Teaching a foreign language is not an easy task. Teachers need to use a variety of methods, activities and strategies to generate an engaging and interesting atmosphere that draws the learners' attention and motivates them to achieve the best learning. Therefore, teachers are encouraged to use what most attract the learners and meet their needs. For this purpose, the Internet motivates students in several ways throughout the learning process; it serves as a motivating stimulus for those frustrated by traditional methods. Currently, learners are big users of computers and new ways of communication; however, they need more help and support in learning a target language. They need to practice improving the four language skills: reading, writing, speaking and listening. To this end, it is very prominent for learners to use various tools to facilitate their learning of the language easily and effectively. The Internet, for this purpose, is one of many help; there are other devices, including tablets, smartphones, mp3 players, digital cameras, and voice recorders. Hence, ICT is a vital resource for learners in the learning process, and growing numbers of language teachers have started to use it more often and in many ways in education because it positively impacts language learners' achievements (Koblihová, 2018).

The impact of ICT heavily depends on how it is used, the teachers' motivation and their "savoir-faire". Therefore, teachers need to work on having enough knowledge about ICT use to achieve their teaching objectives (Isisag, 2012, p.5). Besides, teachers should be aware that current students are a part of the net generation, so using ICT in the teaching and learning process is necessary (Koblihová, 2018, p. 16). Motshegwe (2005) claims that "If the teacher has the skills to organize and stimulate the ICT-based activity, then both whole-class and individual work can be equally effective" (p.10). This indicates that teachers, especially English Language teachers, should integrate ICT into their teaching as it improves the learners' learning. (Mafuraga & Moremi, 2017, p. 143).

To shed light on the benefits of ICT for teaching language further, ICT enables teachers:

- to adjust their teaching materials in line with learners' needs and circumstances;
- to access relevant and authentic materials on the Internet like daily news;
- to merge or use text and pictures, audio and video clips, etc., to make the lesson more interesting and less ordinary, which improves students' engagement.

- to concentrate on one specific aspect of the lesson (pronunciation, vocabulary ...) and prepare the lesson accordingly.
- to have the capability to control technological software like PowerPoint presentations, which makes integrating visuals with listening materials, video clips, text with graphics, and images relatively easy for the teachers. This ICT feature draws our attention to the difference between books and computers.
- to use dissimilar materials in each lesson, not as in teaching with textbooks, where the presented topics are always the same in all classes.
- to provide immediate feedback on the student's work via error correction. Besides spotting the students' mistakes and correcting them, it also provides the necessary advice at times.
- to adjust the computer programs to suit the needs of the students and their language knowledge level. Computer programs are more learner-friendly, unlike books that are created in a single standardized format and need to be taught regardless of students' problems and needs (Isisag, 2012).
- to use ICT as an "assisting tool" for making assignments, communication, data collection & documentation, and conducting research (Bhattacharjee & Deb, 2016, p.4).
- to diversify their lessons, deliver more knowledge and improve the students' learning. Using different technology in the classroom can also help teachers save time and energy and allow more attention to be paid to the content of the course (Naciri, n.d.).
- to plan the lessons effectively and to know their students' progress through using some affordable software. This software allows teachers to offer or receive real-time evaluations of their students. Such software is designed to help teachers stay updated with all records, such as the number of learning assignments given, how long students need to solve a problem, etc. In addition, it helps teachers know how much time some learners need to complete a particular issue and if they improved; if not, what more efforts need to be made to improve them (As suggMorison, 2018).
- to use activities with ICT to have a break from regular classroom learning. In addition to using it as a tool to help transform the classroom into an environment where learners actively construct their knowledge (Koblihová, 2018).

- to use ICT-based tools in blended language learning classrooms to efficiently mentor their learners' progress and enable them to provide individual and personalized guidance to the learners (Chouthaiwale & Alkamel, 2018).

Moreover, for both teachers and learners, research has been easier and more effective with the use of ICT. Teachers and students can access piles of e-books to develop and complete their tasks and research projects. Since much time is saved during the research, students can integrate plenty of information and knowledge into their projects (eMorison, 2018). So, ICT has introduced the teaching-learning process into e-learning, e-communication, easy access to information, online student registration, online advertisement, reduced loaded hardcopy, contacting resourceful persons, etc. The presence of these factors increased the possibility of excellent ICT integration (Naciri, n.d.). ICT does not anymore serve as a simple additional means. It has become crucial to the up-to-date and contemporary teaching and learning environment (Chouthaiwale & Alkamel, 2018).

1.1.4 Criticism of the Use of ICT in Education

Nowadays, we are living in a world where technology has already surpassed humanity. Technology has become increasingly relevant in all aspects of people's lives. Many education experts assert that technological advancements have improved the world's educational system, which is true to some extent, but many others believe that technological advancements have had a negative impact on education.

Students are increasingly relying on computers to complete their assignments rather than on their own experience and knowledge, which is clearly a negative sign for the advancement of education and civilization in the modern world. There are many positive and negative effects of technology in education; however, in the following, we will focus on the adverse effects of technology on educational development (Ovsyannykov, 2020).

Students nowadays are more reliant on pen and paper than they once were. In today's technological age, computers and other devices have replaced the use of pen and paper. These high-tech devices provide the consumer with many advanced features that are much more useful than using pen and paper, but they also cost a lot to maintain. Maintenance and updating obsolete software cost money (Ovsyannykov, 2020). So, they are both cost-effective to buy and maintain, which poor students are unable to afford and to profit from e-learning (Bosamia, 2013). Every individual in the world has the right to education, but rising costs have taken away this right, and those with lower incomes cannot afford it. As a result, we may argue that technology has increased the cost of schooling (Ovsyannykov, 2020).

Heavy reliance on technology negatively impacts students' competencies in three skills reading, writing, and arithmetic. Spitzer (2014) examines the dangers of incorporating technology into the classroom and warns against its detrimental impact on student achievement. He cites literature confirming that typing impairs handwriting and reading and that IT causes shallow information processing. So, students gain less information from Google Books than from printed books and magazines. Similarly, Carr (2011) accuses technology of making our minds "shallow," claiming that students who read linear texts have better comprehension and a stronger memory than those who read through the Internet. He claims (2011) that the transition from paper to computer does not just alter the way we navigate a piece of writing. It also has an impact on the degree of attention we devote to it and how deeply we immerse ourselves in it. Carr says (2011), When we go online, we enter an atmosphere that encourages cursory reading, rushed and distracted thinking, and superficial learning.

Strain-Moritz (2016), an experienced teacher, provides another example of the negative influence of technical devices such as smartphones, tablets, PCs, and laptops on students' performance. She finds that texting has negatively impacted students' ability to compose complete sentences without fragmentation or awkward punctuation. Alhusban (2016) also states that classroom technologies significantly impact students' writing abilities, especially in terms of spelling and punctuation, grammatical accuracy, proofreading, critical thinking, coherence, and linearity. She also reports that students' ability to put forth effort in writing is harmed by their continual exposure to short forms and that the short forms often used in texting make it difficult for them to differentiate formal from informal writing conventions. Bronowicki (2014) takes a similar stance, claiming that students have become lazy because of their heavy dependence on technology on a daily basis. The problem is even worse in primary schools, where students are overwhelmed by technology, especially smartphones, and their use of grammar needs to improve (for example, 4ever instead of forever). Similarly, Granata (2019) acknowledges that students have put down their favourite paperbacks and replaced them with tablets, iPads, and other technology. Reading for pleasure among children has decreased dramatically in the last 40 years, and technology may be to blame.

In the case of math and arithmetic, relying on technology to teach these subjects comes with a plethora of possible dangers. In reality, Zheng examined the negative consequences of using calculators in 1998 and came to the following conclusion:

Concern for the negative impact of using calculators, especially graphing calculators, is very real. Because calculators are generally numerical in nature, students may not acquire solid conceptual understanding. Their

view of mathematics will probably be more procedural and accordingly, their problem-solving skills may be limited. The development of their structural view about mathematics could also be hindered. Moreover, because of it [sic.] design, a calculator may deliver misleading information and create confusion in learning notation (1998, p. 9).

Around 30 years later, in 2012, the UK government revealed its intention to prohibit students from using calculators in primary schools due to excessive use (Stacey, 2014). Math and arithmetic are topics that foster discovery, exploration, and logical thinking in their purest form. According to the study, the use of technology in teaching these subjects, while beneficial, is a hindrance to the development of students' analytical thinking (Alhumaid, 2019).

- Teachers are still reliant on knowledge gleaned from the web. It may be false information. Information from the web or the internet is primarily based on personal opinion. It is not all facts, by the way. Teachers who rely heavily on technology do not perform well in the classroom. They may not, for example, check through the details of the work found on the internet.

On the other hand, students are less likely to attend class if they can easily obtain study materials from the internet. It will cause them to change their behaviour and become more reckless and irresponsible. If a lecturer gives students an assignment, they will not understand it if they never attend the class. While technological dependability was significant, students might react negatively to a teaching or technological resource. Students may only appreciate ICT if they spend less time on presentation needs and copying without reading and learning it through school or college. Simultaneously, students can browse the internet for information and be captured by "cutting and pasting." Students' reliability would be harmed as a result of this form of this behaviour. At that time, the students would use the internet for other purposes, such as Facebook, MSN, Yahoo, Twitter, and other social media sites. They would not pay further attention to the speaker or lecturer when the lecture is taking place in front of them (UKEssays, 2015).

- Research shows that more than 60% of schools and colleges around the world use modern devices like laptops and tablets to teach. As a result, students use the same devices as the teachers to keep up with their lessons. Social media has advanced in leaps and bounds in recent years, with 90 per cent of the world's population using it. Hence, the computers given to students for learning are instead used to engage in social media activity. Students do not use these devices to study; instead, they use them to check their

friends and family's posts and status updates, among other items. This is how technology is becoming a major source of distraction for students, which causes the widening of the distance or the gap between them and their teachers (Ovsyannikov, 2020).

The overuse of technology in classrooms has a dehumanizing impact. To Kemp et al. (2015, p.4), over the last decade, "teaching has been ripped from the realm of human endeavours and morphed into a technological leviathan that is slowly usurping the soul of the profession." This 'leviathan', a mythical sea monster according to Jewish beliefs, exists in many places and at many levels of education, including pre-packaged curricula that the instructor of a specific course does not plan. Teachers present their lessons from afar in higher-education institutions and online classes, for example, and students are expected to communicate with computers rather than humans. The ultimate result is a teacher who knows little or very little about his or her students and students who do not have a close relationship with their teacher. Cazan et al. (2016), Izadpanah & Alavi (2016), and Nye (2006), among others, have previously discussed how technology can dehumanize student-teacher relationships. According to Nye (2006), technology pulls you away from the physical world. Today's college students are habituated to a culture of online blogging, text messaging, and Web surfing that leaves electronic traces. Izadpanah and Alavi (2016) investigated the attitudes of a group of Iranian high school students towards using computers in the classroom as a tool to help them learn English.

According to the study's findings, approximately 58 per cent of the students polled agree that using computers has a dehumanizing impact. Cazan et al. (2016) discovered similar findings when they looked into the relationship between anxiety levels and computer literacy among Romanian high school and university students. In accordance with research, the higher a student's computer self-efficacy, the less anxiety they experience in the classroom. In a society like Romania's, where computer access at home is highly restricted, many students are likely to feel insecure when they are expected to manage digital devices in the classrooms. In addition, reliance on technology in the classroom leads to a loss of rapport between teachers and students, as well as among students themselves, eroding the social relationships involved in teaching and, as a result, eroding one of the key goals of education (Nneji, 2014). If teachers rely on technology in the classroom for an extended period, they will have little time to affect their students. Students, in the same way, cannot form strong bonds with one another. Rivedal (2017) calls technology's dehumanizing feature a "zombie walk" and writes that our most disengaged students are usually the ones who are trapped on their phones and walking

the halls with their heads down. Wilkins (2014) also provides data on teachers' and students' attitudes toward technology and its effect on student-teacher relationships, with some arguing that using technology hinders teacher-student relationships and creates a barrier to easy communication (Alhumaid, 2019).

- While the internet has minimized physical barriers between people, it does not mean that it has brought everyone closer, and emotional distance is boosted in certain aspects. People are constantly preoccupied with their virtual worlds and passing the time and day. They forget about the real world with their families and friends, which becomes a formality. With the use of ICT devices, children are also spending more time in the virtual world and adopting wrong ideas, resulting in increased cybercrime and extramarital affairs (Bosamia, 2013).
- Owing to the rapid development of technology, teachers are now teaching students using various online platforms rather than physically interacting; thus, students are incapable of communicating with one another and discussing issues with them. Teachers need to work on engaging students' attention. It is suggested that teachers use verbal communication with their students along with using online tools. As a result, students will also learn the topics and discuss their problems with the instructor (Ovsyannykov, 2020).
- ICT caused the reduction of face-to-face interaction. People nowadays prefer online to face-to-face communication because they are becoming more individualistic and introverted. Another drawback is that we cannot share our thoughts or say what we want to say by e-mail or social networking sites. As a result, we needed to communicate with them face-to-face in order to share our actual feelings (Bosamia, 2013).
- Collectivism and collaboration are two distinguishing features of face-to-face teaching, while the absence of any sense of collectivism or togetherness is the most distinguishing feature of technology-based teaching. Isolation, according to psychoanalytic theory, is a defence mechanism used by the mind when people are placed in situations that they find upsetting or uncomfortable. As a result, students who often use technology create a sense of safety and security when "wired" to their devices and began to avoid other types of social connections that can cause them to become disconnected. The term "friend sickness" was coined by Paul and Brier in 2001 to describe the loneliness students experience as they move to college and leave old-school friendships behind. They pretend that technology fills the relationship gap, giving the impression that those friendships have not

faded. Technology assists individuals by cocooning them in the virtual world, entangling and isolating them. Lee (2009, p. 510) emphasizes the dangers of technology-enhanced isolation and the threat it poses to children's social growth, claiming that:

The observation that a computer is placed in an individual's room rather than a family room and that a child uses a computer alone without any other family members' presence amplifies concerns about social isolation and harmful influences on children's social development.

In reality, particularly in virtual or distance learning, students' relationships with their teachers and peers are fragile, leading to isolation and obstructing students' desire to collaborate (Croft et al., 2010). For example, 13 universities in the United Kingdom have distance learning programs that enable over 1500 Master's program students to study through the Internet. While these students are endorsed in a variety of ways, including interactive assignments, tailored counselling, and online forums, they lack access to the community of students living on campus, which causes a sense of isolation (Vonberg, 2015). This sense of isolation often leads to feelings of loneliness and closely refers to technology's dehumanizing impact. Both problems stem from a lack of respect for human relationships in the educational setting and a strong reliance on technology.

Teachers rely on electronic technology to teach, and students are cut off from any social contact. What is more worrying is that isolation is becoming more popular among young students who attend schools worldwide where tablets are widely used. Karsenti & Fievez (2013) cite the example of Quebec children being distracted while studying because of their over-reliance on tablets. According to Iserbyt et al. (2014), repeated use of technology-based games and entertainment to make lessons more appealing causes students to become isolated, leading to poorer learning outcomes. Distraction can be added to the technical issues surrounding the use of tablets by young students, even when simple tasks like gap filling and matching are completed, mainly if there is no technical support available to quickly handle those issues (Culén & Gasparini, 2012). Furthermore, the introduction of smartphones has resulted in a quantum leap in ICT integration in education. Underpinned by many educational apps, Smartphones are now commonly used in many parts of the world.

Smartphones are seen as a promising way of teaching, particularly at the higher educational level (El-Hussein & Cronje, 2010). Smartphones are now viewed as tools for sharing content and communicating through text messaging (Kearney et al., 2012). However, research has shown that the widespread use of smartphones in the classroom

causes student distraction, knowledge fragmentation, and teachers' inability to control classrooms (ad & Göktaş, 2001). In short, students use of technology seems to have the ultimate consequence of isolation and loneliness, as they become so engrossed in controlling the classroom digital devices that they forget there are classmates they can rely on and communicate with (Alhumaid, 2019).

Students are becoming lazier as technology advances. It gives them the strength and ability to control anything with only a few mouse clicks. Cheating is against the law, but with all the tools available, technology has made it easy. There are many circumstances in which students can easily cheat without being detected, such as in an examination hall where students can use their smartphones to cheat. With the improvements in technology, smartphones are now equipped with a variety of advanced features as well as internet accessibility, making it easier for students to find answers using the internet (Ovsyannnykov, 2020).

- The use of ICT devices can persuade users to accept a more sedentary lifestyle. Because of their constant use may trigger health issues such as headaches, obesity, heart disease, diabetes, repetitive strain injury or eyestrain, incorrect posture/position, neck pain, physical and mental tension, and so on. Children are stretched by playing online games and watching cartoons, which may prevent them from going outside and make them fearful of conversing with other kids. A lack of physical exercise in this type of lifestyle puts our well-being at risk (Bosamia, 2013).
- People lose the habit of writing because they do not write or write very little, and their handwriting deteriorates. Laptops, desktop computers, tablets, and smartphones have long surpassed traditional pen and paper use. As a result, all relevant tasks and documents are typed and saved into the appropriate files, obviating the need to write them down on paper. According to research, using these computers instead of writing has slowed students' thinking processes and resulted in a decent amount of lethargy (Ovsyannnykov, 2020).
- There are significant costs involved, and poorer students and educational institutions could be disadvantaged as a result. This is often cited as a contributing factor to the digital divide. Students, and sometimes instructors, may become fixated on the technological aspect of the subject rather than the content. Facebook, Twitter, YouTube, Instagram, and other social media networking sites may be a diversion from real-world living and learning. Advertisers take advantage of the big data in the user interface of

these social networking sites to advertise their different products and services to consumers. Educational institutions are included in the marketing efforts of big data houses such as Google, Microsoft, and Yahoo. There are programs geared toward institutions that provide them with free Internet hosting and cloud data storage in return for access to their data for analysis and advertising (Olaore, 2014).

- It is said that knowledge has no age and no limit. Many students want to keep learning regularly, but sometimes it can be difficult for them to attend all the lecture classes regularly. These difficulties can arise for various reasons, including health, family, and other concerns. Technology has solved this issue; students can now learn the topics they missed from websites available on the Internet, which they can access anytime and anywhere they want. The solution is faulty; the contents and lecture videos on the Internet require a fast internet connection, so they cannot be accessed smoothly if the Internet is slow. Compared to physical lectures, these online lectures struggle to inspire students (Ovsyannnykov, 2020).
- The use of ICT in teaching and learning processes needs training. There is a need for teacher professional development to integrate ICT into classroom teaching. Teachers should be informed about new technologies on a regular basis (Thapliyal et al., 2016). This takes a long process to take place.
- Along with technological advancements, teachers are unable to instruct students using new methods. Teachers are familiar with the traditional method of instructing students by interacting with them. In line with research, interactive teaching has been proven to be the most effective way for students to learn. Some educators believe that the interaction aspect is eliminated with the use of technology and advanced devices. The students just research the topics on their own and do not talk about them or discuss them. This has a negative effect on students (Ovsyannnykov, 2020).
- Humans create software and hardware devices, and since humans make errors, the technology or devices created by humans can also contain errors. Time is lost as a result of these errors. Problems like server and connectivity issues take a long time to resolve, disrupting the daily flow of teaching and causing irritation for both the instructor and the student. It is not advisable to waste time due to these unnecessary issues in any

educational institution or school where every second counts for the students (Ovsyannnykov, 2020).

- One of the main disadvantages of using laptops and computers for educational purposes is that laptops and computers are human-made machines that can fail to work correctly because of both internal and external causes. Students nowadays choose to complete all their assignments on their laptops or tablets, and schools and colleges also prefer soft copies. For example, a student puts in a lot of effort and persistence to complete his or her assignment. If the student's laptop unexpectedly fails at the last minute, the student will be in serious trouble. All their efforts and hard work will be for nought. As a result of a device failure, the student's entire effort will be wasted. Students should always keep a backup or a hard copy of all required documents. Thus, we can conclude that these devices are only partially reliable (Ovsyannnykov, 2020).
- With rapid growth and technological advancement, website owners are willing to rank their websites higher on various search engines. As a result, the owners are primarily concerned with ranking and are less concerned with the website's content. This is why many websites contain inaccurate information on various subjects that have been pasted or copied from various sources without verification of the content's authenticity. Learners are often misled because of this incorrect knowledge, which can significantly negatively impact their educational betterment (Ovsyannnykov, 2020).
- The term "ebook" refers to a type of electronic book. Ebooks are electronic copies of traditional books that are easy to store and download. Instead of purchasing the book from a store, a person may download it online. The problem is that these books are not compatible with all computers, and continued staring at a laptop or smartphone screen will cause users to develop eye problems. So, students are recommended to use regular books. Converting eBooks to a universal format like PDF is one way to solve the compatibility issue. They can convert Electronic Publications (EPUB) and other eBook formats to Portable Document Format (PDF) with a powerful PDF editor like PDFelement. This format would look the same regardless of the user's operating system or computer, so they can combine text and other rich media material without worrying about layout issues while using PDF. PDFelement gives them even more flexibility by

converting printed materials into editable PDFs from images or scanned PDF files (Ovsyannnykov, 2020).

- Another disadvantage of relying on technology in education is creating a big gap between the wealthy and the poor. In terms of school infrastructure, there are significant gaps between developed and developing countries. Though schools in developed countries have nearly all technical devices (Personal Computers (PC)s, laptops, tablets, projectors, and Internet access), schools in developing countries have fewer. Hence, students in developing countries graduate with minimal basic technical skills (e.g., PC literacy) and have difficulty finding a well-paying job or competing in the global market. Also, in developed countries, there is often a digital divide (van Dijk & Hacker, 2011); that is, there is a significant gap between students from various social backgrounds. Poor students may have access to technology in the classroom but cannot afford any device at home, as shown by their poor academic performance compared to their wealthy peers. According to a report by the National Telecommunications and Information Administration (NTIA), townspeople in the United States are 50 per cent more likely than rural areas to have Internet access (Steele-Carlin, 2017). Sarah Phinney, the distance learning coordinator at Porterville Adult School in Central California, said the following about the effects of the digital divide:

In my seven years' experience working with this population [at Porterville Adult School], I have found that a great number of the students we serve, especially those who speak English as a second language, are computer illiterate and thus are on the lean side of the divide (Steele-Carlin, 2017 as quoted in Alhumaid, 2019, p. 16).

Suppose this is the result of the digital divide in the United States. In that case, it must be even more extensive and more severe in other countries where the divide is more expansive, as in Egypt, private schools and universities have a better, more functional technological environment than public schools and universities, as shown by the vastly different levels of graduates from both types of education (Warschauer, 2011). Even though the Egyptian government has equipped many of its schools with technical equipment and Internet access, they are seldom used due to extreme red tape and a lack of teacher training. Most Egyptians cannot afford to purchase any technical computer or original software at home; as a result, most graduates of state educational institutions lack basic PC skills and need extensive rehabilitation after graduation. Needless to say that the digital divide will lead to antisocial behaviour because students who are technologically marginalized may feel oppressed and unachieved (Alhumaid, 2019).

1.1.5 ICT Competence

Competence is borrowed from the Latin word "Competere," which means "to be suitable". Psychologists originally invented the word "competence" to describe an individual's ability to respond to certain demands put on them by their surroundings (Sampson, Fytros, 2014, p. 6). In literature, there are enormous definitions of competence or competency from dissimilar authors in various application fields. This research study presents the main definitions of competence in the educational context.

To begin with, Weinert (1999) provides a more general concept of competence: Competence is an approximately specialized system of capabilities, proficiencies, or human dispositions for learning something, doing something, or achieving a particular goal successfully. This can be applied to a single person, a group of people, or an institution. Besides, Weinert (2001) states that competency can be considered as cognitive abilities or skills, which encompasses all of an individual's mental resources that are practised in mastering complex tasks across multiple content domains, learning necessary declarative and procedural knowledge, and performing well.

To Illeris (2012), "competence or competencies address what an individual can do, what an individual is capable of doing, and the ability to react in various situations and contexts with the capabilities that an individual possesses". Furthermore, competence can be described as a collection of skills that can be operationalized into actions related to a specific field or specialization. Through reflexive activities, practitioners achieve experience and knowledge of how and when to use skills in various contexts (Røkenes, 2016, p. 32). Conforming to Mandl and Krause (2003), competence is characterized as a system of prerequisites for promising action in specific domains that can be affected by practice and learning.

In line with Kopaiboon et al. (2014), competency is the capacity to carry out work successfully due to an individual's knowledge, skills, characteristics, and attitude. Knowledge, skills, and attitude as all features that contribute to an individual's competency. To start with, knowledge is what a person has learned in class, from experience, and from comprehending a specific subject. Skill refers to the ability to use knowledge to complete tasks promptly and accurately. Attitude refers to Individuals' stances, feelings, or interior features that reflect a sense of understanding the benefit and value of a specific thing.

To shed light on ICT competency, in recent years, a variety of concepts related to the mastery of technology-related skills, such as Digital Competence (DigComp) and Digital Literacy (DigLit), have been analyzed in the literature. DigLit is thought to be a major driver

of DigComp. To understand DigComp, we need to know DigLit first. Literacy is the ability to read and write text using conventional paper-based literacy and associated literate practices. Nevertheless, because of emerging Digital Technology (DigTech), a new form of literacy has arisen, requiring users to incorporate information by incorporating sound and moving images, oral and written language, and 3D objects, as well as understanding their unique affordances, uses, and constraints (Al Khateeb, 2017).

As shown in Figure 2, Internet literacy, ICT literacy, media literacy, and information literacy are all partly overlapping with what we call DigLit (Ferrari, 2012).

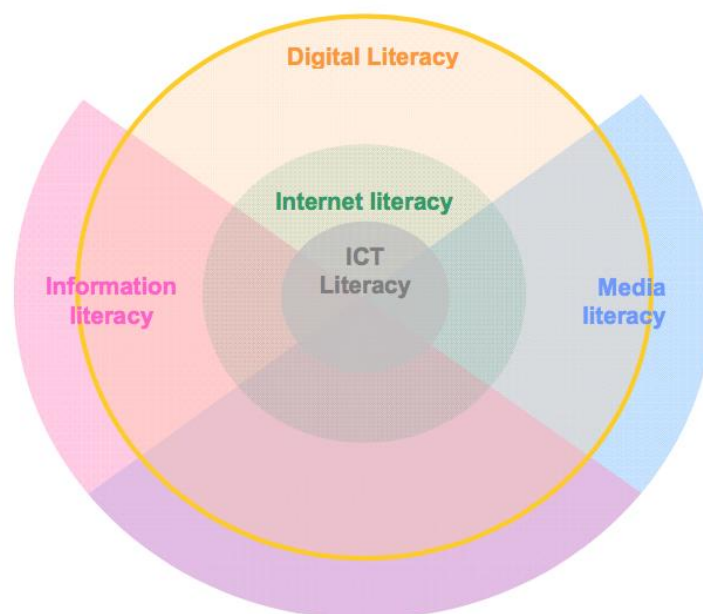


Figure 2: Mapping Digital literacy and other related literacies (derived from Ala-Mutka, 2011, p.30).

DigLit has been defined as “the ability to understand and to use information in multiple formats from a wide range of sources when it is presented via computers” (Gilster, 1997, p.7). In accordance with the European Commission (2008), DigLit is “the skills required to achieve digital competence... Digital literacy is underpinned by basic technical use of computers and the Internet” (as quoted in Ala-Mutka, 2011, p. 31). While to Lankshear and Knobel (2006), DigLit covers more than basic ICT technological skills. Instead, the term should be interpreted as a set of social practices and concepts relating to reading and writing. For instance, writing blogs, engaging in social networking communities, judging the reliability of online sources, and navigating web links are all samples of aforementioned social activities (Røkenes, 2016).

ICT literacy refers to the capability of using computers and related technology from end-users to ICT professionals. It is commonly defined as the knowledge and skills required to

effectively use hardware and software components. Computer literacy is described by Simonson, Maurer, Montag-Torardi, and Whitaker (1987) as an appreciation of computer characteristics, capabilities, and applications and the ability to apply this knowledge in the skilled, efficient, and fruitful use of computer applications (Ferrari, 2012).

"Internet literacy" refers to the ability to use the Internet effectively. According to Van Deursen (2010), "Internet literacy" refers to a particular tool or medium. In this context, it could be considered a subset of ICT literacy. As in the above figure, it is depicted as broader than ICT literacy because it is presumed that an Internet user would need to have a basic understanding of computer operation and the ability to understand information, media, and communication through the Internet. To Hofstetter & Sine (1998), Internet literacy is concerned with connectivity, security, communication, and web page growth. It should be noted that Internet literacy is rapidly changing, as web page development is no longer as essential as would the competencies to comprehend and manage web 2.0 resources. Furthermore, the Internet is now accessible from many devices, including cell phones and television sets (Ferrari, 2012, p.17).

Regarding media literacy, the European Commission characterizes media literacy as "the ability to access the media, to understand and to evaluate different aspects of the media and media contents critically and to create communications in a variety of contexts". Besides, "media literacy" refers to the skills, knowledge, and understanding that enable people to use media effectively and safely. People who are media literate can exercise informed choices, appreciate the nature of content and services, and take advantage of the full spectrum of opportunities that are provided by new communications technologies. They are better equipped to protect themselves and their families from potentially harmful or offensive material (European Parliament and the Council, 2010, p. L95/96, as quoted in Ala-Mutka, 2011, p. 33). Hobbs (1998) defines "media literacy" as "the ability to access, analyze, evaluate, and communicate messages in a wide variety of forms". The ability to analyze media messages and the media environment is known as media literacy (Christ & Potter, 1998, as cited in Ferrari, 2012, p.17). It entails using and developing media items obtained from television, radio, newspapers, movies, and the internet. Media education is usually concerned with a critical assessment of what we read, hear, and see in the media, audience evaluations and media message creation, and an understanding of the messages' meaning. In reality, media literacy is expanding beyond the comprehension of print, radio, and television messages to include digital media, including the internet (Ferrari, 2012). Livingstone et al. (2005) consider Internet literacy as being a part of media literacy, and it is made up of three elements: "*access*" to hardware, online content, and services; "*understanding*" online knowledge and opportunities through

critical evaluation; and "*creation*" of online content, which includes consumption, participation, and interaction (Røkenes, 2016, p.36).

Although there are many similarities between Information literacy and media literacy, Information literacy is now highly relevant for internet use. It built on the tradition of librarians and began as the ability to retrieve, access, and understand information. Information literacy, according to the American Library Association (1989), is described as “the ability to recognise when information is needed and the ability to locate, evaluate, and use the needed information effectively” (Ferrari, 2012, p.18). While to Bawden (2001), information literacy “is usually taken to include an ability to deal with electronic sources” (p. 246 as quoted in Røkenes, 2016, p.36). Although computer and information literacy share certain characteristics with DigLit, the former appears to be more concerned with technological computer skills, whereas the latter is more concerned with online searching and judgment skills in library practice (Røkenes, 2016).

After the illustration mentioned above of DigLit, DigLit embodies reading and understanding how to interact with media to generate digital representation and attain knowledge primarily through digital means. Whereas DigComp refers to information provided to the use of computers and electronic devices. DigComp, as it is claimed, is not limited to online-based knowledge but rather complements other types of popular literacies (Al Khateeb, 2017).

Ferrari (2012) defines DigComp as the knowledge, skills, attitudes, abilities, strategies, and awareness needed to use ICT. Moreover, digital media is to carry out tasks, solve problems, communicate, manage information, collaborate, generate and share content, and construct knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, and reflectively for work, school, socializing and other purposes. In addition, it entails understanding, knowledge, and attitudes toward ICT values, as well as the ability to interact with cutting-edge technology and digital information (Ferrari, 2013), where users have the freedom to develop, control, design, and self-actualize. This ability is related to cognitive-thinking techniques in terms of using digital information and performing and accomplishing tasks in digital settings (Al Khateeb, 2017).

In agreement with Ferrari (2013), DigComp is regarded as a necessary component of twenty-first-century life. It entails skills beyond looking for information on the internet and includes more challenging services and advanced expertise like problem-solving, sharing, and collaborating with peers (Griffin, McGraw, & Care, 2012, as cited in Al Khateeb, 2017). Recently, competencies related to the use of ICTs and technology have begun to be recognized

as "life skills," comparable to literacy and numeracy, and have thus become "both a prerequisite and a right" (OECD, 2001 as cited in Ferrari 2012, p.15).

As stated by Moore (2003), ICT competencies, traditionally, have been defined as "the ability to use the computer, peripheral equipment, operating system and software" (as cited in Osorio & Nieves, 2014, p.300). Kopaiboon et al. (2014) claim that ICT competency refers to the knowledge, skills, and ability to use ICT to collect, process, and present information in support of activities among various groups of people to work, relax, and communicate. It is also a necessary skill in today's information-based society (Kopaiboon et al., 2014).

ICT competency comprises three major dimensions: knowledge, skill, and attitude. As it comes the following:

1) Knowledge refers to the users' knowledge of ICT and its value they realize on a regular basis. The understanding includes the knowledge of ICT and its related contents. It also entails an appreciation of technology and its advantages in everyday life.

2) Skill refers to the ability to make use of ICT knowledge and skills to conduct work via the following skills: "1) information access and processing, 2) information evaluation, 3) information production, 4) information management, 5) information communication and 6) the use of the Internet network".

3) Attitude belongs to the appreciation of the advantages and consequences of using ICT and understanding the use of ICT in developed societies, as well as the realization of the importance and accountability for communication and other purposes. It also includes essential evaluative skills that contribute to social and ethical competencies. According to Belgium (2005), social and ethical competencies will improve attitude to the point that it includes honesty and accountability for using new technologies. Furthermore, social and ethical competencies make users more likely to follow ethical agreements to use ICT properly and ethically and assist those who are having trouble using ICT.

So, Individuals who are considered to have ICT competency must be capable of creating required documents, figuring out solutions for problems, and choosing appropriate ICT resources for problem-solving and efficient work. They must also be able to gather and ethically

exchange information, possess fundamental ICT knowledge, and develop and utilize novel ICT tools efficiently (Kopaiboon et al., 2014).

1.1.6 Teachers' ICT Competence

The pervasiveness of DigTech has profoundly altered almost every aspect of our lives, including how we communicate, work, enjoy our leisure time, organize our lives, and obtain knowledge and information. It has influenced the way we think and act. Children and teenagers are growing up in a world where DigTech is everywhere. They do not and cannot realize any difference. This does not imply, however, that they are born with the necessary skills to use emerging technology efficiently and conscientiously.

National and European policies recognize the importance of providing all people with the skills they need to objectively and creatively use DigTech. The European DigComp Framework, amended in 2016/17, addresses this need by offering a framework that enables European citizens to understand better what it means to be digitally competent and evaluate and develop their DigComp.

For pupils and students in compulsory education, an abundance of initiatives on the European, national, and regional levels dispenses guidance and advice on how to allow young people to improve their DigComp, often emphasising critical skills and digital citizenship. Most European Member States have developed or are developing corresponding curricula to ensure that the next generation is able to participate creatively, objectively, and productively in a digital society.

As a result, there is much interest at the international, European, national, and regional levels in equipping teachers with the skills they need to fully harness the potential of DigTech for improving teaching and learning and adequately preparing their students for life and work in a digital society. Many European Member States have already developed or are developing or revising structures, self-assessment methods, and training programs to direct teacher training and continuous professional development in this field or are in the process of doing so (Redecker, 2017).

Educators are role models for future generations. Hence, they must be well-equipped with the digital skills that all people need to participate fully in a digital society. These skills are outlined in the European DigComp Framework for Citizens. DigComp has become a widely recognized method for assessing and certifying DigComp, and it has been used as a foundation for teacher training and professional development across Europe and beyond. Educators, as

citizens, must be equipped with these competencies to engage in society on a personal and professional level. They must be able to clearly illustrate their DigComp to students and pass on their innovative and vital use of technology as role models. Educators, on the other hand, are more than mere role models. They are, first and foremost, facilitators of learning or, to put it another way, teachers. As educators, they need educator-specific DigComps in addition to general DigComps for life and work in order to effectively use DigTech in the classroom (Redecker, 2017).

Therefore, teachers must have sufficient ICT skills to use ICT best. Teachers' ICT competencies and how they view the role of ICT in their teaching/learning processes are quite cardinal in incorporating ICT into education. According to Klein, Spector, Grabowski, and de la Teja (2004), competence is a collection of related knowledge, skills, and attitudes that allow a person to effectively perform the activities of a provided occupation or job function to the standards required in the workplace (Malinina, 2015).

DigComp was defined by the European Commission (2007) as one of eight core competencies for lifelong learning. DigComp is currently considered necessary for full participation in today's increasingly digitalized society, economy, educational system, and workplace. Furthermore, DigComp is a critical component of future economic, social, and cultural growth (Røkenes, 2016).

Krumsvik (2011) has defined DigComp with a focus on a micro level and the teaching profession in particular: To Krumsvik, DigComp is the "teacher/TE's [teacher educator's] proficiency in using ICT in a professional context with good pedagogic-didactic judgment and his or her awareness of its implications for learning strategies and the digital Bildung of pupils and students". Krumsvik characterizes DigComp with a focus on teachers' professional and pedagogical use of ICT by distinguishing them from other users (Røkenes & Krumsvik, 2016, p. 2).

DigComp can be argued as a part of teachers' professional competence since the use of ICT in the classroom has become an increasing mainspring feature of teachers' work (Krumsvik, 2011; Lund et al., 2014). This is attributable to a few factors, including worldwide technological advancements and growth, which have resulted in a global change from an industrial to an information-based networked or competent society (Røkenes, 2016).

Competencies in ICTs can be classified as a) the core competencies of DigLit, which are related to the use of ICTs in classroom presentations and activities, and include the use of digital resources to attain information, as well as the use and improvement of materials accessed

from diverse online sources; b) the implementation competencies, which are concerned with the application of skills and knowledge to generate and execute complex projects, solve problems in real-world situations, collaborate with others, and use the information and experts networks; c) the ethical competencies, which are concerned with the ethical, legal and conscientious use of ICTs (UNESCO, 2008 as cited in Gastelú et al., 2015).

In line with the DigCompEdu framework, six diverse areas were identified in which educators' DigComp is expressed with a total of 22 competencies (see Figure 3).

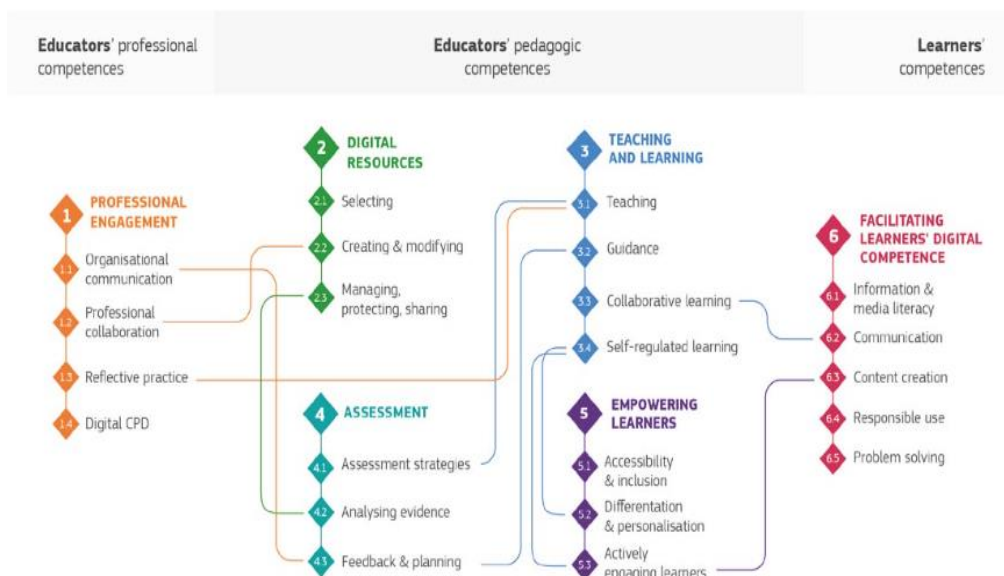


Figure 3: DigCompEdu Framework Overview (Redecker, 2017, p.16).

Each of the six DigCompEdu areas concentrates on a disparate aspect of educators' professional activities:

Area 1: Professional Engagement

Educators' DigComp is shown by their ability to practice DigTech not only to improve teaching but also for their professional interactions with colleagues, students, parents, and other interested parties, as well as for their professional growth and the common benefit and continuous innovation in the organization and teaching profession.

| 1.1 Organisational communication | 1.2 Professional collaboration | 1.3 Reflective practice | 1.4 Digital Continuous Professional Development |
|--|--|---|--|
| Using DigTech to improve organizational communication with learners, parents, and third parties, contribute to creating and improving organizational communication techniques in a collaborative manner. | Using DigTechs to collaborate, share and exchange information and experiences with other educators, and collaboratively innovating and improving pedagogic approaches. | To individually and collectively reflect on, objectively assess, and actively improve one's own digital pedagogical practice and that of one's educational community. | To utilize digital sources and resources for professional development regularly. |

Table 1. Area 1: Professional Engagement (Redecker, 2017, p. 24).

Area 2: Digital Resources

Educators are now faced with a plethora of digital (educational) resources to use in their classrooms. One of the most important skills for any educator to acquire is the ability to cope with this diversity, to effectively identify tools and resources that best suit their learning goals, learner community, and teaching style, to structure the wealth of materials, create links, and to change, add on to and develop themselves digital resources to underpin their teaching.

At the same time, they must understand how to use and handle digital content responsibly. When using, updating, and distributing resources, they must adhere to copyright laws and safeguard confidential material and data, such as digital tests or student grades.

| 2.1 Selecting digital resources | 2.2 Creating and modifying digital resources | 2.3 Managing, protecting and sharing digital resources |
|--|--|--|
| Recognising, evaluating, and choosing digital resources for interactive teaching and learning processes. When choosing digital tools and outlining their use, take into account the particular learning goals, context, pedagogical strategy, and learner community. | To change and construct existing openly-licensed resources and other resources where permissible. To create or co-create new digital educational resources. When designing digital tools and organizing their use, consider the particular learning purpose, context, pedagogical strategy, and learner community. | To organize and make digital content accessible to students, parents, and other educators. To effectively safeguard confidential digital content. Respect for privacy and copyright law, as well as their proper application. To learn how to use and create open licenses and open educational resources, entailing their appropriate attribution. |

Table 2. Area 2: Digital Resources (Redecker, 2017, p. 24).

Area 3: Teaching and Learning

DigTech can strengthen and expand teaching and learning strategies in various ways. Regardless of the pedagogic technique or methodology used, the educator's digital competence lies in effectively orchestrating the use of DigTech in various phases and settings in the learning

process. 3.1: Teaching is the fundamental skill in this area – and possibly the entire framework. This competency is concerned with the designing, planning, and implementing of the use of DigTech in various stages of the learning process.

Competencies 3.2 to 3.4 build on this competency by stressing that the real potential of DigTech lies in moving the emphasis of teaching from teacher-led to student-centred processes. As a result, a digitally-competent educator's job is to act as a mentor and guide for students as they move toward greater autonomy in their learning. In this sense, digitally-competent educators must be able to design new ways, assisted by DigTechs, to offer instruction and encouragement to learners, both individually and collectively (3.2), as well as initiate, support, and monitor both self-regulated (3.4) and collaborative (3.3) learning practices.

| 3.1 Teaching | 3.2 Guidance | 3.3 Collaborative learning | 3.4 Self-regulated learning |
|--|---|---|---|
| Planning for and incorporating digital devices and resources in the teaching process to improve the efficacy of teaching interventions. To properly plan and orchestrate digital teaching interventions effectively. To experiment with and enhance new instructional formats and pedagogical methods. | To use digital technology and resources to improve individual and group interactions with learners both within and outside the learning session. Using digital technology to provide timely and targeted advice and assistance. To test and build new forms and formats for providing guidance and support. | Through using DigTechs, promoting and developing learner communication. To encourage students to use digital technology in collaborative assignments to improve connectivity, teamwork, and knowledge building. | Using digital technology to underpin self-regulated learning processes, such as allowing students to plan, reflect, and focus on their own learning, provide proof of improvement, share insights, and come up with innovative solutions. |

Table 3. Area 3: Teaching and Learning (Redecker, 2017, p. 24).

Area 4: Assessment

Assessment can either facilitate or stifle educational creativity. We must understand how DigTech can improve current evaluation methods while incorporating DigTechs into learning and teaching. Simultaneously, we must bear in mind how they can be used to develop or promote novel evaluation methods. With those two goals in mind, digitally-competent educators should be able to use DigTech within the assessment.

Furthermore, the use of DigTech in education, whether for evaluation, learning, administration, or other purposes, leads to a vast amount of data being accessible on each learner's learning behaviour. Analyzing, interpreting, and using this data to aid decision-making is becoming increasingly essential – complemented by the analysis of traditional evidence on student behaviour.

Concurrently, DigTech can help directly track learner development, facilitate feedback, and enable educators to assess and adapt their teaching strategies.

| 4.1 Assessment strategies | 4.2 Analyzing evidence | 4.3 Feedback and planning |
|---|--|---|
| Practicing DigTechs for both formative and summative assessment. To bolster the diversity and suitability of assessment formats and approaches. | To create, pick, critically analyse and interpret digital evidence or data on learner activity, performance and development to inform teaching and learning. | Using DigTech to cater targeted and timely feedback to learners. To adapt teaching techniques and to offer targeted support, grounded on the evidence produced by the DigTechs used. To enable learners and parents to comprehend the evidence dispensed by DigTechs and utilize it for making decisions. |

Table 4. Area 4: Assessment (Redecker, 2017, p. 25).

Area 5: Empowering Learners

One of the most critical advantages of DigTechs in education is their ability to promote learner-centred pedagogical methods and increase learners' active participation in the learning process and ownership of it. Thus, DigTech can be used to support active learning, such as when exploring a subject, experimenting with various options or solutions, understanding connections, developing innovative solutions, or creating and reflecting on an artefact.

DigTech may also help in supporting classroom differentiation and personalized education by providing learning opportunities tailored to each learner's level of competence, preferences, and learning needs. At the same time, caution must be exercised to avoid exacerbating current inequalities (for example, in access to DigTech or digital skills) and ensure accessibility for all learners, including those with special educational needs.

| 5.1 Accessibility and inclusion | 5.2 Differentiation and personalisation | 5.3 Actively engaging learners |
|--|--|---|
| To ensure that all learners, including those with special needs, have access to learning resources and activities. To consider and respond to students' (digital) expectations, skills, uses, and misconceptions, as well as contextual, physical, or cognitive limitations to their usage of DigTech. | Using DigTech to meet the diverse learning needs of students by enabling them to progress at various levels and speeds and pursue their own learning paths and objectives. | Using DigTechs to encourage active and innovative interaction with a subject matter, incorporating DigTechs into pedagogical techniques that motivate students to develop transversal skills, deep thinking, and creative expression. To expose learners to modern, real-world contexts for learning, such as hands-on experiments, scientific investigation, complex problem solving, or other ways to increase learners' active participation in complicated subject matters. |

Table 5. Area 5: Empowering Learners (Redecker, 2017, p. 25).

Area 6: Facilitating Learners' Digital Competence

One of the transversal competencies that educators must instil in students is DigComp. While the ability to promote other transversal competencies is just a part of educators' DigComp

as digital tools are used, encouraging learners' DigComp is an essential part of educators' DigComp. In this area, students will be enabled to use DigTech innovatively and responsibly for information, communication, content production, well-being and problem-solving (Redecker, 2017).

| 6.1 Information and media literacy | 6.2 Digital communication & collaboration | 6.3 Digital content creation | 6.4 Responsible use | 6.5 Digital problem solving |
|---|--|---|---|--|
| To incorporate learning activities, tasks, and assessments that require students to express information needs, find information and resources in digital environments, arrange, process, analyze, and interpret data, and compare and critically evaluate the credibility and reliability of information and its sources. | To incorporate learning activities, tasks, and assessments that demand students to use DigTechs efficiently and responsibly for communication, collaboration, and civic participation. | To incorporate learning activities, tasks, and assessments that demand students to use digital tools to express themselves, as well as change and construct digital content in a variety of formats. To teach learners how to reference sources, attribute licenses, and apply copyright and licenses to digital content. | To ensure students' physical, psychological, and social well-being as they use DigTechs. To equip students with the knowledge and skills they need to handle risks and use DigTechs safely and responsibly. | To incorporate learning activities, tasks and assessments that demand students to recognize and solve technical problems or creatively apply technological knowledge to new circumstances. |

Table 6. Area 6: Facilitating Learners' Digital Competence (Redecker, 2017, p. 25).

So, after the DigCompEdu mentioned above Framework, we can get to the point that the successful incorporation of ICT into the classroom will rely on the capability of the teacher to organize the learning environment in new ways, to combine new technologies with a new pedagogy, to create socially engaged classes, promoting cooperative engagement, collaborative learning, and group work. This necessitates a unique range of classroom management skills. The teaching skills of the future will include the ability to find creative ways to use technology to improve the learning experience and promote technology awareness, knowledge deepening, and knowledge building (Røkenes, 2016).

According to research on instructional uses of technology, teachers often lack the knowledge to incorporate technology into their teaching effectively, and their attempts are often restricted in scope, variety, and depth. As a result, technology is more often used as "efficiency aids and extension devices" rather than as tools that can "transform the nature of a subject at the most fundamental level" (McCormick & Scrimshaw, 2001, pp. 31-47 as quoted in Koehler et al., 2014, p. 101).

For this purpose, to understand how teachers can better use technology in their classrooms, researchers have concentrated on the types of knowledge that teachers need to use technology more efficiently. Shulman (1986) proposed that successful teaching necessitates a

special form of knowledge learned, as pedagogical content knowledge (PCK), which is described as "the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (p. 8 as quoted in Koehler et al., 2014, p. 102). The PCK's core premise is that learning to teach a specific subject requires not only an understanding of the content but also the development of suitable instructional strategies and skills that are suitable for learners.

Mishra and Koehler's (2006) formulation of the technological, pedagogical, and content knowledge (TPACK) framework extended Shulman's (1986) characterization of teacher knowledge, which specifically considered the role that technology knowledge could play in successful teaching. The TPACK framework is built on three main knowledge components, which are as follows:

- **Content knowledge (CK):** is any subject-matter knowledge that a teacher is accountable for teaching.
- **Pedagogical knowledge (PK):** refers to the teacher's knowledge of a range of instructional practices, strategies, and methods that can be used to encourage students to learn.
- **Technology knowledge (TK):** refers to teacher knowledge of both conventional and modern technology that can be incorporated into the curriculum.

The TPACK framework has four components that discuss how these three bodies of knowledge interact, constrain, and afford each other:

- **Technological Content Knowledge (TCK):** relates to the knowledge of the reciprocal relationship between technology and content. Technology and its representational and functional capabilities often describe and constrained as Disciplinary knowledge.
- **Pedagogical Content Knowledge (PCK):** is to Shulman's (1986) notion of "an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (p. 8 as quoted in (Koehler et al., 2014, p.102).
- **Technological Pedagogical Knowledge (TCK):** belongs to the appreciation of technology that can constrain and provide specific pedagogical practices.
- **Technological Pedagogical Content Knowledge (TPACK):** refers to knowledge

about the complicated relations between technology, pedagogy, and content that allows teachers to establish relevant, proper, and context-specific teaching strategies.

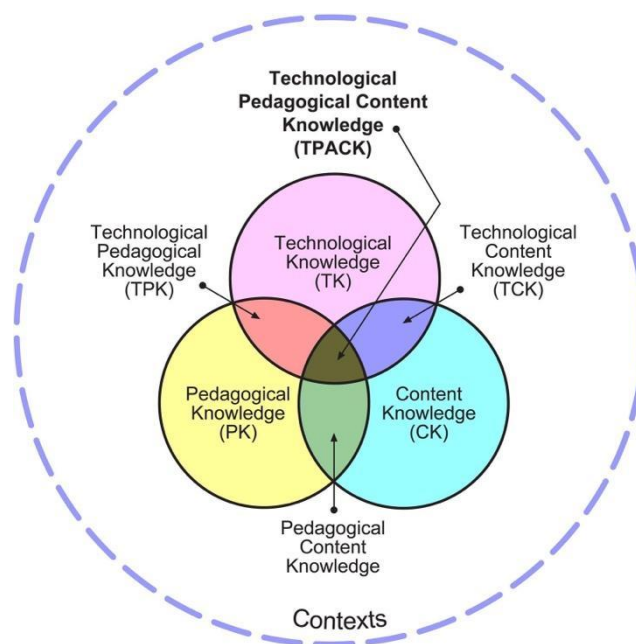


Figure 4: The Technological Pedagogical Content Knowledge Framework (Koehler et al., 2014, p. 103).

According to the TPACK framework, to orchestrate and coordinate technology, pedagogy, and content in teaching, teachers have to deeply understand each of the above components of information (Koehler et al., 2014). In addition, a teacher must be well-qualified in terms of content and pedagogy in order to teach the content. This involves the teacher's understanding (reflectively) of the method of developing and designing teaching methods and teaching resources or materials, including ICT. Furthermore, the teacher chooses a range of different learning activities that are customized to the student's diverse needs and are implemented using current materials and resources, including ICT. If applicable, he employs an electronic learning environment that allows for time- and place-independent learning while facilitating efficient communication about learning from distinct locations (Zwaneveld & Bastiaens, 2010).

According to Hogenbirk (2006), teachers' ICT competencies ought to underpin the following educational goals: making teaching flexible, creating individual learning paths, expanding the possibilities of part-time education, generating rich learning environments, experimenting with new teaching concepts, increasing teacher-student interaction, supporting collaborative learning, and motivating learners, well-equipping students for lifelong learning, strengthening teaching efficiency, decreasing costs, and enhancing the appeal of teaching as a career (Zwaneveld & Bastiaens, 2010).

Kirschner et al. (2003) assembled a teacher's professional competencies list. In terms of ICT, they came up with the following:

- Personal ICT competencies: teachers in training should have a basic understanding and skills of Microsoft Office software and the ability to apply these skills in communication.
- ICT as a mind tool: teachers should be able to use software applications to promote meaningful thought and working.
- ICT as a pedagogical tool: teachers ought to improve their knowledge, skills, and experience in resource-based learning and collaboration in a digital environment.
- ICT as a teaching tool: teachers should be aware of the educational possibilities and limitations of ICT as a teaching method.
- Social aspects of the use of ICT: teachers should be mindful of ICT and use it purposefully (Zwaneveld & Bastiaens, 2010).

Based on the preceding discussion, teachers' use of ICT differs from other occupations, leading to the need for the development of professional DigComp among teachers, teacher educators, and future teachers (Røkenes, 2016). Additionally, we realize that a teacher's general DigComps (as mentioned in DigComp) is a prerequisite for developing teacher-specific DigComps as depicted in DigCompEdu. Further prerequisites are the instructor's subject-specific, pedagogical, and transversal competencies (Ghomi & Redecker, 2019).

1.2 Framework of the dissertation

In accordance with the research questions and the research purposes of this study, the research content is divided into five chapters: introduction, literature review, research design, research results, and discussion. The main contents of each chapter are summarized as follows:

Chapter 1 Introduction

This chapter mainly focuses on the general situation of this study, including six sections: Information and communication technology and some major concepts and a short historical overview, ICT and Education, ICT and Communication, and ICT and Language Learning and Teaching, Criticism of the Use of ICT in Education, ICT Competence and Teacher's ICT

Competence, the framework of the dissertation, statement of the problem, Purpose of the research, and the significance of the study.

Chapter 2 Theoretical Background

This chapter includes four parts: Collaborative Learning, Impacts of Collaborative Learning on Students' Language Learning, Collaborative Learning Vs Cooperative Learning, and Theoretical Background (Socio-constructivist and Socio-cultural approaches).

Chapter 3 Literature Review

This chapter includes ICT and Collaborative Learning, How to Collaborate Learning Through ICT Use Improve Student EFL Performance, (Software) that Promoting Collaboration Practically to Improve Student EFL Performance (Zoom, Microsoft team, Moodle, LMS Uniform), Challenges/Barriers of Using ICT in Collaborative Learning in Teaching EFL, and How can we eliminate the barriers.

Chapter 4 Research Design

This chapter demonstrates the Methodology of the study. The present study adopts the mixed research methodology, which includes interviews and questionnaires. This chapter also presents the aim of the study, the research questions, the research hypotheses, the Methodology, a description of the research setting and participants, instruments, data collection procedures, and data analysis procedures.

Chapter 5 Research Results

This chapter entails the analysis of qualitative and quantitative data obtained from the questionnaire and the interviews.

Chapter 6 Discussion

This chapter discusses the results of qualitative and quantitative data, points out research limitations and suggestions for further research, draws a conclusion and recommends suggestions to improve the use of ICT as a tool for CL in teaching EFL.

1.3 Statement of the Problem

Throughout the history of teaching, many barriers deprived teachers of providing enough learning opportunities to learners. For instance, the spread of COVID-19 has caused all sectors, including the educational sectors around the world, to be closed to prevent the spread of the virus. The COVID-19 pandemic prevented teachers from their consistent teaching

process, and they had to look for more innovative approaches to engage all learners and achieve the desired learning in students.

The aforementioned situation inspired the researcher to investigate ICT use as a tool for CL, which is one of the practical teaching approaches that can help learners improve their academic and language performances and enhance teaching EFL even outside of the classroom. Since CL is more student-centred, teachers can make use of this approach to provide more learning opportunities to the learners.

1.4 Purpose of the research

This research study will explore the use of ICT as a tool for CL aims at teaching EFL and simultaneously prove the impacts of using ICT as a tool for CL to improve EFL teaching and learning in State universities in Kurdistan. Besides, finding out the barriers of using ICT with the use of CL in teaching EFL and what strategies the university teachers implement to eliminate the barriers of using ICT with the use of CL in teaching EFL. With the wish to improve the level of EFL teaching performances, students' language learning performances through bringing teachers-students and students-students together to work interactively and collaboratively, which in turn promotes the reform and development of the EFL teaching and learning process. So, based on the research purposes, this study aims to answer the following questions:

1. What are the impacts of using ICT as a tool for CL to improve EFL teaching?
2. What are the impacts of using ICT as a tool for CL to improve EFL learning?
3. What are the barriers of using ICT with CL in teaching EFL?
4. How can we eliminate the barriers of using ICT with CL in teaching EFL?

The participants are the EFL University teachers of the English Language department in Kurdistan-Iraq. The reasons behind choosing the English Language Department are, it dedicates to provide well designed program-based language learning, and the English language can be acquired naturally there since teachers provide themed activities with practicing various subject disciplines.

1.5 Significance of research

The direct recipients of the output of this research are teachers of the English language; this research helps them to have adequate knowledge about implementing ICTs as a tool of CL for teaching EFL in class. EFL teachers will be able to discover some proper and valuable ICT methods and strategies conducive to students enhancing their EFL performances. It also helps

teachers create an authentic learning environment that helps the students increase their language learning performance.

Chapter Summary

In this chapter, the introduction, ICT, ICT and Communication, ICT and Education, ICT and Language Learning and Teaching, Criticism of the Use of ICT in Education, ICT Competence, Teachers' ICT Competence, Framework of the dissertation, Statement of the Problem, Significance of research have been presented. In the next chapter, the Theoretical Background of the study will be demonstrated.

Chapter 2

Theoretical Background

2.1 Collaborative Learning

CL is a method that provokes learners to rely on each other while acquiring knowledge and making the learning process more meaningful and interesting. Learning in a group encourages students to feel that other learners accompany them and are not isolated. Students working in a group are like a community; each learner in this community supports one another. Working students get academic and social support to meet their learning needs in such a group. Since learners in a group have different performance levels, they not only undertake their own learning but are also accountable for their peers' learning. "In other words, success will breed more success". (Ibrahim et al. 2015, p. 346). Hence, students teaching each other helps them improve their oral communication skills. For this purpose, they must establish a clear conception of the idea they present and express it orally to their partners (Laal & Ghodsi, 2012).

In CL, students are centred, take responsibility for their learning, and actively engage during the learning process (Laal & Ghodsi, 2012). CL is significant for students working together in classes and the community working together with the instructor to improve expertise and knowledge, thus changing the essence/nature of classroom authority. As an advocate of CL, Bruffee (1993) defines 'knowledge' as "something people construct by talking together and reaching agreement" (p. 3). Students work in groups of two or more in most CL scenarios. They mutually look for comprehending, finding solutions, meanings, or making a product. In CL activities, there is a wide variety, but most concentrate on the discovery or implementation of the course material by the students, not simply the introduction or clarification of it by the instructor. Everybody participates in the classroom, working as partners or in small groups. The group activity is driven by questions, problems, challenges, or the task of making something. Learning occurs in the most open ways (Davidson & Major, 2014).

Students are more relaxed and share their experiences when they learn in groups and learn many new things from the group members. When they do the tasks in groups, even learners who are backward in their studies will do well. In CL, students work together in groups, naturally engaging in the work according to their choices, and it encourages them to do the work more gladly. Therefore, there are plenty of opportunities for them to get outstanding results from the tasks provided, and these successful results lead to more fruitful CL. In addition, learners can do the task more easily and quickly in CL by saving time, stress, and

energy when they do these tasks in groups. When the learners engage in groups in CL, the learners' enthusiasm and motivation will be enhanced, and the learners will feel more relaxed and autonomous while performing the tasks. Doing the tasks through discussion among the group members helps the learners find self-satisfaction. In addition, the confidence levels of the learners and their progression towards being autonomous learners are increased.

Furthermore, learners in groups work together in CL to accomplish a common purpose, which is typical to enable each other to learn their teaching materials. The learners in such groups have higher levels of thinking; besides, they store knowledge for extended periods than students who work individually. It is true that groups learn spontaneously through 'discussions, clarification of ideas, and evaluation of the ideas of others. For a long time, the information they share in their conversations has been preserved in their mind (Rao, 2019a). As Entwistle & Tait (1993) state, students' having a high level of interaction and interdependence during group work causes deep learning rather than surface learning (Laal & Ghodsi, 2012, p. 489). Vygotsky, the father of social learning, is in favour of testing the capacity of learners to solve problems instead of only obtaining knowledge. Therefore, the idea of CL is concerned in some way with Vygotsky's notion of the "Zone of Proximal Development" (ZPD), which contemplates how a learner learns in a social learning environment when he/she gets support from peers or adults. By considering this learning model, we can consider how collaboration and working together increase understanding of other concepts between learners (Rao, 2019a, pp. 331-332).

CL has an essential advantage in terms of the groups that work together long enough during a course. Learners get to know each other in teams and expand their activities beyond the classroom. They contact each other to get help with their questions or challenging tasks, and learners can also continue their communications in later terms. In classes and institutions, CL helps to build learning communities (Laal & Ghodsi, 2012). Moreover, equality and mutuality are other characteristics of effective CL models. CL encourages learners to be viewed equally and demands that they mutually support and respect each other. While this provision cannot be enforced, it does need to be facilitated. Learners are more likely to study in such an educational environment because their gains and efforts are shared, and sharing creates a fearless environment that is rarely accomplished in traditional school settings. It dissolves tension between students, teachers, and administrators in relationships (Ezekoka, 2015). As research shows that, in any setting, CL reduces aggression and violence. Most textbooks on social psychology provide extensive discussions about conflict, often instigated by rivalry from individuals or inter-groups, and its resolution or reduction using cooperative techniques. CL

encourages positive social responses to problems and facilitates a supportive atmosphere in which dispute resolution is handled (Laal & Ghodsi, 2012).

It has been shown that CL not only improves higher-level cognitive skills in students but also raises their confidence and self-esteem. Group projects will enhance the educational experience by illustrating the material while enhancing social and interpersonal skills. Students learn how to work and improve their leadership skills with different learning styles (Gates, 2018). Besides, CL contributes to students' self-management. Students are prepared within their groups to complete the assignments and work together and must comprehend the topic they intend to contribute to their group. They are often given time to process group behaviours to ensure that homework tasks are not only done but understood, such as checking with each other. These experiences and interactions help students learn strategies for self-management (Laal & Ghodsi, 2012).

According to Layman's study (2006), most students were more interested in collaborating with another student, believing that pairing made them more coordinated/organized and believing that pairing saved time on homework assignments (Ibrahim et al., 2015). Students' participation in the learning process and working together are the most successful method of interaction as well. As students work in pairs, one person listens while the other partner discusses the topic under investigation. So, each pair will be able to gain useful problem-solving skills via formulating their ideas, debating them, getting immediate feedback, and responding to questions and comments. Students need a knowledge base on which to function to improve their critical thinking abilities. It also takes some degree of repetition and memory practice to learn this foundation/base. The method can be repetitive, frustrating, or overwhelming when this is done individually. When students work together, despite the repetitive nature of the learning process, the learning process becomes exciting and enjoyable.

Furthermore, in CL, students' target accomplishments are positively correlated in a learning situation; students assume that they will meet learning goals only if the other students in the learning group also accomplish their targets. Students thus pursue results beneficial to all with whom they are associated cooperatively. Individuals are more likely to give up when they get stuck, but groups are much more likely to find ways to continue (Laal & Ghodsi, 2012).

Lastly, CL offers many opportunities for the instructor to observe students communicating, explaining their reasoning, asking questions, and debating their ideas and concepts. These are much more inclusive methods of assessment than depending only on

written tests. Moreover, CL offers many options for alternative ways of student assessment. CL decreases classroom anxiety caused by new and unfamiliar situations that students face. The students see that the instructor can evaluate both how they think and what they know. The teacher gets a greater understanding of the learning style of each student and how he/she performs through interactions with students during each lesson, and an opportunity is provided through which the teacher can provide the students with further feedback, guidance, and counselling (Laal & Ghodsi, 2012).

See Figure 5: Some Features of the Collaborative Learning



Figure 5: Some Features of Collaborative Learning (Retrieved from Rao, 2019a, p. 333).

2.2 Impacts of Collaborative Learning on Students Language Learning

CL, generally defined, reforms classroom learning by transforming learners from passive recipients of information to active knowledge-building agents. This learning style takes many forms, including cooperative and collaborative learning, and is known by many names. While cooperative and collaborative learning originates from various traditions, both provide learners with organized group activities and encourage the social skills that students need to work together. They vary depending on the amount of structure given to students and the degree of constructed knowledge presented.

In CL literature, different names given to forms of CL embody "reciprocal learning, team learning, study groups or circles, peer teaching, and the most well-known, cooperative

learning" (Seel, 2012, p. 631). Their emphasis on active learning, teamwork, and cooperation between students and teachers is what all these names have in common. It is possible to bundle and mark a notion as broad as CL in myriad ways, but the underlying concept is involvement in and ownership of learning (Goodsell, Maher & Tinto, 1992).

CL has become a prevalent teaching method in EFL/ESL classrooms in the 21st century. Accordingly, most English teachers, linguists, curriculum designers and researchers paid more attention to CL use in order to achieve better results. Since a CL approach primarily supports the pragmatic approach in which learners have to do the work independently, both EFL/ESL teachers and learners produce outstanding results. Learners learn more from their group mates by watching their success in carrying out the tasks or projects and strive to contribute much to achieving fruitful outcomes within the stipulated period (Rao, 2019b).

With the implementation of the CL method, students will be capable of properly handling their learning by getting feedback and guidance from someone else and relying on it. The students' interactions and experiences in the classroom have a profound influence on their cognitive and academic development. Therefore, teachers must ensure that students are exposed to an atmosphere in the classroom that is conducive to learning and contributes to more academic success. CL is such a method which can have positive impacts on students. It allows the student to play a more active and responsible role. Their pursuit of knowledge makes students rely on each other and makes learning more meaningful and interesting. Students will feel connected to the rest while studying in a group. Also, it caters to students with much-needed social support. This is because, through group experiences such as negotiation and exchanging information and ideas, learning happens socially (Ibrahim et al., 2015).

In well-known research, Ruhl et al. (1987) explored what happens when learners are given opportunities at crucial points in a lecture series to share an understanding of classroom content. The same guidance was given to two groups of university learners in two separate ways. In the experimental group, during each of the five lectures, a teacher paused for 2 minutes on three occasions (intervals between pauses were around 15 minutes). During the breaks, while learners worked in pairs to discuss and rework their notes, there was no contact between the teacher and learners. At the end of each lecture, 3 minutes were dedicated for the learners to write down everything they could recall from the lesson. Twelve days after the last lecture, learners were offered a multiple-choice test to assess long-term retention. A control group had the same lectures as those in the "pause procedure" group and was evaluated similarly. The outcomes were consistent in two distinct courses repeated over two semesters. Learners who

encountered more learner-to-learner interaction and were more engaged in the learning process performed much better on the daily assessments and the final multiple-choice test. The size of the disparity in mean scores between the two classes was sufficiently high to differentiate between two grades of letters. This research indicates that if instructors talk less (even 6 min less, as noted in this study) and brief pauses for collaboration are engineered, learners can learn more efficiently (Seel, 2012).

CL proponents accept that when there is an active exchange of various views and beliefs, CL will not only generate learners who become critical thinkers but will also increase learners' interest in the subject matter being debated. There is conclusive evidence that learners involved in CL will have and show higher or sophisticated levels of thinking and will therefore be capable of maintaining data longer than learners who do not participate in such learning practices or prefer to function in isolation (Ibrahim et al., 2015). To illustrate, Newton (2001) examined learning vocabulary via communication exercises. Students were exposed to new terms in a collaborative context during the conversation. As a consequence of this treatment, not only was the rich use of language accomplished, but the meanings of most words were retained for a long time (Sadeghi & Safari, 2012).

Overtom 2001 reports that the CL can boost one's employability skills by facilitating active learning and self-discovery (Ibrahim et al., 2015). In addition, CL can improve a wide variety of skills that are not limited only to language skills but also to "group management and self-management skills, effective planning and decision-making skills, higher-level thinking skills, leadership skills, presentation skills, organizational skills, communication skills and coordination and cooperation skills and rational thinking skills" (Rao, 2019a, pp. 336-337). These are the most important skills for achieving particular objectives in the current and modern world. As CL is done with Content and Language Integrated Learning, it enables English Language Learners (ELLs) to explore different subject areas through English. This offers an opportunity for ELLs to improve their language skills and gain knowledge of different subjects. Language teachers need to actively engage ELLs in learning language skills and dispense them with chances to listen, speak, read, and write in English and reflect on English problems, ideas, topics, tasks and interests. In the past, learning was known to be only a passive ability in which information is learned and taken into account for potential use. The modern ELLs, however, instantly apply their skills gained in the classroom to their real-life circumstances as they participate in groups to conduct certain activities or projects utilizing a collaborative approach.

Besides, CL strengthens the language learning abilities of ELLs as it caters for them to share their experiences with their group and paves the way for them to learn anything in detail that restores a long period of time in their minds. Since learners have been accustomed to working in groups since their schooling days, even in their higher studies in the English Language Learning (ELL) environment, they will definitely follow the same techniques when they have to learn some difficult tasks. The teachers are responsible for incorporating different English Language Teaching (ELT) and ELL techniques and methods to include ELLs in thoroughly learning language skills. If teachers notice that their learners do not develop, they have to consider the group dynamics of the ELLs and incorporate them with collaborative approaches to shape the teams of learners so that they can move on through a CL approach to the subsequent level of learning. It is certain that real teamwork or collaboration occurs when the ELLs engage in their work with a lot of commitment, enthusiasm and loyalty to the work they do in groups. In addition, each group member must contribute to the group's mission and collaborate in a learner-friendly atmosphere so that the vital feature of CL in the ELL environment will be a great success (Rao, 2019a).

Moreover, "Bedel (2016) studied the need for literature circles that support collaborative learning in the EFL classroom to achieve higher literary and language skills". The value of CL has long been stressed and accepted as it is one strategy in the foreign/second language classroom that can create a relaxed and low-threat learning environment. It is generally believed that the less nervous and more comfortable the learner is, the better his language learning progresses. In addition, several researchers have endorsed the method's usefulness in terms of learning achievement and student satisfaction (Pattanpichet, 2011, p. 1). Additionally, Ziegahn 2002 states that when the teaching method that is used takes into account the desires and motives of the learners, learning can be further enriched.

As a consequence of the CL, students' enthusiasm will be improved. This is because students will feel in control and motivated in their own learning process. According to the study of Scribner and Scribner (2001), in high-performing schools serving Mexican-American students, excellence resulted when students were actively motivated to communicate with each other and engage in CL activities. This illustrates that students would be more driven to succeed if they feel encouraged to improve their circumstances. (Ibrahim et al. 2015).

In accordance with the investigation of Espina et al. (2017) regarding the advantages of Collaborative Action Research in improving speaking skills in Chilean EFL classrooms, the results showed that the activities obtained from the group interviews inspired the student's

interest and involvement in classes. The peers' collaboration helped everyone recognize their strengths and enhance their weaknesses during teaching. In addition, Huang et al. (2012) studied the influence of the use of CL from a dialogical and social point of view on the collaboration of seventh graders in an EFL classroom at a state (public) school in Bogotá, Colombia. The findings disclosed that carrying out a severe approach to language education and adopting CL as the social framework of information could illuminate the possibilities of reforming traditional learning and teaching practices in which both students and teachers play a distinct role, thus stabilizing the interaction and partnership between the participants in the classroom and supporting the students' empowerment.

In line with Alahdal & Al-Ahdal's study (2019) to explore the experience, social constructs, and attitudes of Qassim University's EFL students and teachers, it is inferred from the results that there is a beneficial effect of CL on teaching EFL. In addition, CL is favourably viewed by students and teachers as it provides them with many advantages. The approach certainly reduces learning pressure and promotes collaborative relationships between learners, which can be extended in real-life situations as they move from academic to professional work environments. Teachers also feel that when real-life learning takes place, they do justice to their work. In any case, teachers recognize that with the emergence of technology in education, they now have to play the role of facilitators for their learners.

In agreement with Pattanpichet's study (2011) to find out the effects of using CL to enhance students' English-speaking achievement, the findings show promising results, both in terms of students enhancing their English oral performance and their perspectives on the use of CL in an English-speaking classroom as an instructional tool. Based on the results, the technique can significantly improve the learners' competence and create a positive learning environment for several reasons. First, the fruitful collaboration between the learners brings a sense of solidarity and greater familiarity. As a result of frequent collaboration with their peers or group members, the learners became more and more acquainted with the tasks and each other. As their familiarity and friendship grew, their anxiety and face threats decreased simultaneously as the students' feedback disclosed that they had no tension, felt comfortable and enjoyed themselves in the classroom. Second, CL is an appropriate and productive instructional approach for a crowded class. No students were left out of the class when organizing group work or pair-work projects. The teacher could lead a large class by making every student practice independently with their partners or teammates. At the same time, while the instructor was observing and monitoring each group, the learners were encouraged to be accountable for their learning and built a knowledge-sharing environment.

Furthermore, CL helps create a classroom atmosphere similar to real social life and work conditions in which students communicate, negotiate and exchange ideas with each other is a reasonable justification for adopting this approach. The approach makes it possible for students to have a lot of chances to practice under time constraints. The students could practice with their peers outside the classroom as much as they liked. The students also learned how to work as a team, in addition to other activities they could accomplish.

Conforming to the study of Momtaz & Garner (2010) regarding whether CL improves EFL students' reading comprehension. In line with this study, in a CL setting, learners were able to increase the degree of their peer interactions, which was an important learning function, while the learners were involved in communicating with people in their community and collaborating with their peers (Vygotsky, 1978). Learners in collaborative reading groups had more chances to communicate with their peers; thus, if they made errors, they had more chances to be corrected by their peers. Collaborative reading provided natural, collaborative contexts in which learners were interested in interactive processes such as brainstorming, listening to each other, asking questions, eliciting self-disclosure, making reflexive remarks, seeking affirmation, asking for clarification, clarifying concerns, collective summarizing of paragraphs, and collective paraphrasing of the utterances. Such regular contact between learners raised the amount of learner discussion and learner interest and partnership in the classroom, which in turn played a role in developing the encyclopedic and linguistic awareness of the learners. On the other hand, private readers have been deprived of these interactive processes.

Additionally, students had opportunities to gain feedback and modelling from their peers in the collaborative reading class. According to Vygotsky (1978), an essential characteristic of learning is that it awakens several internal developmental mechanisms that can only work when the learner is engaging and interacting with people in his or her environment and collaborating with his or her peers. In order to make the learner feel part of this environment, the authenticity of the environment and the affinity between the participants are, therefore, important elements when it comes to collaborative reading comprehension. In private reading, these elements are missing. In effect, much of the importance of collaborative reading lies in how group activities enable learners to participate in such high-level cognitive abilities as analyzing, describing, synthesizing, and elaborating. So, the findings of this research indicate that learners who read collaboratively significantly outperform students who read privately. In other words, the impacts of collaborative reading are important in improving the reading comprehension capacity of Iranian EFL university students.

Finally, research at all levels of schooling has shown that when learners have agency in the process, they learn and retain more and have opportunities to talk and express, listen, share, communicate, reflect, and be involved (Seel, 2012). Hwang's investigation regarding the effect of negotiated interaction on second language vocabulary acquisition of Korean beginner learners (2002) declared that the negotiated interaction group achieved more vocabulary words than the non-negotiated interaction group. Kowal and Swain (1994) also explored the influence of dictogloss on second language learning by involving a group of intermediate and advanced French learners in reconstructing a text after they first listened to it. The results showed that during group collaboration, learners observed their linguistic difference, related form and context (meaning), and got feedback from their peers. The experimental group outperformed the control group (Sadeghi & Safari, 2012). Based on previous studies, the CL is an effective method in the EFL/ESL learning classroom in more ways than one. So, English language teachers need to integrate more CL activities into their lessons (Ibrahim et al., 2015).

2.3 Collaborative Learning Vs Cooperative Learning

Learning within small groups plays a great role in today's primary and higher education pedagogy. Several research outcomes proved that learners working in small groups outperform their working in many main areas individually, including expanding their knowledge, thinking skills, social skills, and course satisfaction. Over the past decades, a multitude of terms have been used to describe such learning, but most generally, such group-based processes are called collaborative or cooperative learning. Such methods are based on developmental and educational theory and suggest that learning is a cooperative, collaborative process of social knowledge-building.

CL is a philosophy of interaction and personal lifestyle in which each individual is accountable for his/her actions, including learning and respecting their peers' abilities and contributions; Cooperative learning (CoL) is an interaction structure designed to facilitate the attainment of a specific end product or goal by people working in groups together (Panitz, 1999). Both CoL and CL have origins in social constructivism and Vygotsky's (1934/1986; 1978) and Piaget's (1951) developmental theories. According to these developmental theorists, socio-cognitive conflict facilitates more robust thinking as the students work together. "Vygotsky further argued that all learning and development is socially constructed, arising on the social level before the individual level. Both Piaget and Vygotsky see the learner as an active agent, but Vygotskian theory emphasizes that learning is not an individual construction, but rather the social co-construction of knowledge, taking place within ever-changing historical

and cultural contexts" (Jeremy & Obeid, 2017, pp. 2-3).

Both CoL and CL "are considered small group processes that are concerned with knowledge acquisition, problem-solving, and/or learning" (Olivares, 2008, p. 130). In addition, in both CL and CoL learning classes:

- the focus is on the essentiality of active learning, which is better than the passive mode of learning;
- the teacher in plays as a facilitator rather than a "sage on the stage";
- teacher and student share both teaching and learning experiences;
- the role of the teacher is to balance the lesson and small-group activities;
- greater emphasis is placed on the learner's taking responsibility for his and her learning, including situations where the learner as a member of the group needs to articulate ideas in the group;
- small group activities improve students thinking skills and formulate each learner's ability to use knowledge;
- learners' social and teambuilding skills optimize via consensus-building, which is an essential part of liberal education
- students belonging to a small and supportive learning group expand their success and information retention.
- Appreciating (or recognizing) diversity is vital for a multicultural democracy's survival.
- Articulating one's thoughts in a small group environment improves the capacity of students to reflect on their assumptions and modes of thinking (Matthews, Cooper, Davidson & Hawkes, 1995).

Although CoL and CL approaches share much in common, they have differences as well. To begin with, In the opinion of John Myers (1991), the dictionary definition of "collaboration" is a Latin root word that emphasizes working together, and the word "cooperation" focuses on the product of the work. CoL has American roots in John Dewey's philosophical writings, which emphasize the social nature of learning and Kurt Lewin's work on group dynamics. At the same time, CL has British origins, focused on English teachers' finding ways to help students respond to literature by taking a more active role in their learning. The practice of CoL aims to use quantitative approaches that focus on learning achievement:

i.e., the learning product. Whereas the CL practice takes a more qualitative method, evaluating the students' speaking in their response to a piece of literature or a primary source in history (Panitz, 1996, pp.1-2).

Another difference between the two CoL and CL is their structure of the tasks and activities. As Oxford (1997b) reported, CoL "is considered more structured, more prescriptive to teachers about classroom techniques, more directive to students about how to work together in groups" than CL. Also, Kagan (1989) claims that CoL consists of the structural approach built on the systematic implementation of the structures. These structures should be filled into CoL activities with academic content, but in essence, these structures are content-free ways of organizing social interaction in the classroom and proscribe behaviour for every step of the CoL process (as cited in Veldman & Kostons, 2019, p.76). So, we can get to the point that the highly organized approach of CoL is one of the very potent factors that have improved and produced a lot of teaching strategies (e.g., jigsaw) so far to cause small group activities more achievable (Kato, Bolstad & Watari, 2015).

In addition, according to Dillenburg (1999), CoL is characterized by the division of activities, while CL is characterized by the interconnection of learning activities in relation to the goal (Kasíková, 2017). In other words, in CoL, collaborators divide the work, solve subtasks separately, and then bring the pieces together to create the final product. In CL, collaborators collaborate on a project 'as a team.' (Dillenburg, 1999). CL usually encourages learners to be more flexible with their group colleagues in the working process (Kato, Bolstad & Watari, 2015). It is a joint activity, unlike in CoL, where the stress is on working together or interdependence; in CL, the attention is on working with each other but not necessarily interdependently. Both Oxford, 1997; Panitz, 1999 describe CL as being more philosophically oriented to socializing students in the presence of communities' cultures and the broader world (Veldman & Kostons, 2019). Unlike CoL, which is a technique in the classroom, CL is more a personal philosophy: practitioners practice the philosophy of CL not only in the classroom but also, for example, at committee meetings, and typically as a way of living and dealing with other people (Panitz, 1999). This indicates that compared to CoL, CL has a much broader concept and less structure in its execution (Veldman & Kostons, 2019).

Furthermore, both CoL and CL are dissimilar in terms of student or teacher-centeredness. Regarding CoL, it is more directive, and it is closely controlled by the teacher (Panitz, 1999). In this learning classroom, the teacher sets goals for groups of learners to work on. The learning activities for the group are carefully structured to facilitate the involvement

and learning of (ideally) all group members in a shared undertaking; decisions about what to research, which group compositions, which group activities, and how to assess and evaluate are primarily made by the instructor. Instructors actively observe groups, offer guidance and support, and ask questions as needed to stimulate reflection. Group interaction skills are specifically demonstrated in some CoL methods (Veldman & Kostons, 2019). CoL is considered to be more prescribing in practice and more directive for learners on how to work individually or together in groups (Matthews, Cooper, Davidson & Hawkes, 1995).

CL activities vary widely, but most concentrate on student discovery or implementation of course material, not merely the presentation or description of it by the instructor. CL is a major change in college classrooms from the traditional teacher-centred or lecture-centred environment. The lecture/listening/note-taking process only partially vanished in CL classrooms, but it exists alongside other processes that are focused on learners' debate and active work with the course material (Smith & MacGregor, 1992). CL provides freedom to learners to discuss their ways and means of interaction with peers more easily because it implies that they are already "responsible participants" who can learn autonomously by collaborating with others (Kato, Bolstad & Watari, 2015, p.24). Furthermore, unlike in CoL, where the emphasis is on working with each other or interdependence, in CL, the emphasis is on working together (but not necessarily interdependently) towards the same goal as the root word suggests — in this case, the exploration, understanding, or information creation. Also, CL is a pedagogy that has at its heart the idea that people make sense together and that the process enriches them. In the same way, group interaction skills are still not explicitly taught in CL approaches (Davidson & Major, 2014).

The appropriateness of the type of knowledge is another dissimilarity between CoL and CL. Brufee describes two kinds of knowledge as the basis for selecting an approach, which are Foundational and non-Foundational. Foundational knowledge is the central knowledge embodied by socially based values we all agree on. To illustrate, accurate spelling and grammar, mathematical procedures, historical facts, knowledge of the constitution's contents, etc., would represent basic knowledge types. According to Brufee, Foundational knowledge is best taught in early grades using CoL systems (as cited in Panitz, 1999). Development can be built upon this foundation in later grades since the materials are more complex. Consequently, due to cooperative learning approaches that deal with foundation knowledge, tasks should not be split into subtasks distributed among learners since all learners need to acquire this foundational knowledge and skills (Veldman & Kostons, 2019).

Whereas CL is seen as best suited to studying higher-order, non-foundational knowledge. Non-foundational knowledge is characterized as knowledge derived from reasoning and questioning, which requires a critical learning approach. This knowledge can be divided between group members; groups with heterogeneous populations may effectively discuss specific tasks related to their expertise, after which individual contributions are merged. Therefore, through CoL practices, students learn basic knowledge and social communication processes. Their logical thinking and reasoning skills are then expanded as they become more engaged and in charge of the learning process through CL activities (Veldman & Kostons, 2019).

Last but not least, the use of CoL and CL is also distinct regarding the learners' age and educational level. Generally, practitioners have used both CoL and CL terms at all levels regardless of the age and educational level of the learner. What determines which approach is used depends on the degree of students' sophistication involved; for instance, the CL approach requires more advanced learner preparation working in groups (Panitz, 1999). CoL tends to be more targeted to primary education, whereas CL tends to occur more in secondary and higher education. The goal of CoL is to increase the achievement of students by assisting them to learn to work with each other and, by doing so, an effort to make education more efficient and effective. This goal is similar to that of CL, as there is also the goal of making education more efficient and effective and encouraging people to work with each other on substantive issues effectively. However, it is presumed in CL that the students already have the requisite skills and motivation to achieve their common learning objectives, with less structure and guidance provided. As a result, we might conclude that CL is more suitable for students in colleges and universities and complements the CoL encountered by children in primary school: while/although the theoretical focus may shift, the main principle of putting it into practice remains substantially the same (Veldman & Kostons, 2019).

All in all, since both CoL and CL approaches have their respective benefits, it is the teaching objectives that should eventually decide which approach will best fit any individual situation. Any priority of the two cannot be specified without considering educational factors such as the purpose of the class, the motivation of the learners, the ability and the degree of autonomy. With a clear understanding of the various contexts of CoL and CL, language teachers and researchers are expected to use these approaches effectively and appropriately for their teaching and research goals (Kato, Bolstad & Watari, 2015). In light of all the above similarities and differences, the researcher determined that the CL is a suitable approach for conducting her study according to the student's age and educational level.

See Table 1. for the summarized differences between Cooperative and Collaborative learning.

| Cooperative Learning | Collaborative Learning |
|---|--|
| American root | Latin root |
| More structured: each learner provided with a specific role | Less structured: learners need to be flexible, coordinate their activities and negotiate |
| Use quantitative approaches that focus on learning achievement | Use a more qualitative method, evaluating the student's learning during the process of learning |
| More directive to students about how to work together in groups | Less directive to the students since it is expected that they are already "responsible participants" |
| More teacher-centred | More learner-centred |
| Foundational knowledge | non-Foundational knowledge |
| Primary Education | Secondary/University Education |

Table 7. Differences Between Cooperative Learning and Collaborative Learning.

2.4 Theoretical Background

The origins of CL as a teaching methodology can be traced back to ancient civilizations. However, it has been substituted by other learning philosophies both in the West and the colonized East. In the second half of the 20th century, CL was granted a new lease of life when studies found that learners learned faster and remembered more when they became active participants in the teaching and learning process instead of being mere recipients of their educators' expertise (Banerjee, 2010).

CL has been applied and studied since the early 1900s (User, 2016). The principles of this method, as a philosophy and technique of interaction, are based on the theories of constructivism and social learning (Seel, 2012). Their collective work stress on how learners learn has led teachers to build more student-centred learning environments that place learners at the centre of education. Vygotsky explicitly claimed that learning is a social activity and cannot be performed in isolation. This concept is the basis of CL (User, 2016).

In this section, we shed light on those theories that have mainly influenced CL: the socio-constructivist and socio-cultural approaches to learning (Valtonen, 2011).

2.4.1 Socio-constructivist approach

The socio-constructivist approach demonstrates the learning mechanisms with various cognitive processes (Valtonen, 2011). Even though the theory of Piaget focused primarily on individual aspects of cognitive development, it stimulated a group of psychologists (the so-called Genevan School) who conducted a systematic empirical analysis in the 1970s of how

social interaction influences individual cognitive development (Dillenbourg et al., 1996). In line with socio-constructivist theory, people's knowledge structures, so-called schemas, direct people's attention, actions and learning (Valtonen, 2011). This approach has strengthened the position of interactions with others rather than actions themselves (Dillenbourg et al., 1996).

The theories of cognitive and social constructivism are based on a reasonably identical epistemology but vary in the degree to which individual cognitive development is affected by social interaction. Piaget is the representative of the cognitive constructivist view; he shed light on the individual's knowledge construction in response to interaction in the physical world but emphasized the primacy of individual cognitive growth as a relatively solitary act apart from the social context. On the other hand, Vygotsky (1978) and later Bruffee (1986) and Wertsch (1991), as social constructivists, stressed the primacy of social interaction as the driving force and prerequisite for individual cognitive betterment via the internalization of ideas experienced in the realm of socio-cultural (Nyikos & Hashimoto, 1997).

In his theory of social constructivism, Vygotsky (1978) asserted that the essence of learning is inherently collaborative, and that learning cannot be isolated from its social context. Social discourse is the means of the betterment of cognitive functions and information. A critical tenet of this theory is that knowledge or the way people perceive their experiences and reality is not simply constructed; it is co-constructed in relationships between people via the frameworks of language and culture. CL builds an environment in which knowledge can be co-created through the lens of social constructivism, offers opportunities for individuals to learn from more competent peers, and facilitates conceptual growth through modelling experiences, viewpoint-taking, and cognitive challenges (Seel, 2012).

According to Piaget (1959), a learner's cognitive growth relies on manipulating the environment and active interaction with it. States of disequilibrium were fundamental to this learning process because of an imbalance between what was comprehended and what was experienced. Piaget proposed that peer interaction facilitates cognitive conflict by revealing differences between the experience of the peers themselves and the knowledge of others, leading to disequilibrating. As a higher level of appreciation arose, through interaction and debate between people of equal status, equilibrium was restored, and, at the same time, cognitive progress occurred. This is assumed to be an internal mechanism that expresses itself in actions. Studies based on a Piagetian constructivist framework have largely underpinned this view that working with a peer directs to a more significant cognitive advantage than working alone.

Nevertheless, researchers in the Vygotskian tradition claim that cognitive growth is most likely to arise when two participants, who vary regarding their initial level of competence, work collaboratively on a task to achieve a common understanding. In contrast to Piagetian theory, this external mechanism is co-constructed through sharing knowledge, which is later internalized. This perspective has two main principles: the Zone of Proximal Development (ZPD) and intersubjectivity (Vygotsky, 1978). The ZPD is the distinctness between what a learner can achieve individually and what can be done with a more 'expert' partner. 'Intersubjectivity' is the shared awareness that emerges from people debating their diverse views. The 'expert' is considered responsible for adapting and changing the level of support or guidance needed (scaffolding) to suit the novice's ZPD. Studies focused on the Vygotskian framework have promoted the view that cognitive development relies on active, social interaction, encompassing reasoning and description with a more knowledgeable partner with a diverse subjective interpretation of the task (Fawcett & Garton, 2005).

Besides, in a Piagetian framework, accurate communication becomes feasible and promotes the individual cognitive construction of operatory structures when learners can take into account the other persons' perspectives and when they can resolve socio-cognitive conflict. Regarding early Piaget, both social interaction—in particular, and peer interaction, as a developmental factor, remain more of a stimulus for individual cognitive growth. In accordance with the research studies that Piaget's co-workers conducted (e.g., Doise and Mugny, 1984; Perret-Clermont et al., 1991), social factors, such as the need to cope with conflicting viewpoints, can have a productive effect on cognitive behaviour. For instance, in a Piagetian conservation assignment, learners improved more easily to a subsequent level of development after facing contradictory judgments provided by an adult or another learner (Cummings, 2001).

Furthermore, in Dewey's opinion, learners do not learn in isolation; one can learn through being part of the neighbouring community and the world. Dewey suggested a triangular relationship for the social construction of ideas among the person, the society, and the world. Like Dewey, Vygotsky gets to the point that ideas have social origins; they are constructed by contact with others. A person's cognitive system is a consequence of contact with social groups and cannot be isolated from social life. Vygotsky (with Dewey) concentrated on the individual deeply rooted in the group context (Oxford, 1997b). Notice the dissimilarity between Piaget, who concentrated on the individual, and Vygotsky, who stressed the individual and was firmly rooted in the group context. For Vygotsky, the instructor acts as a facilitator or guide. When the learner needs the most incredible support, the instructor offers scaffolding to ensure that the learner's constructs begin and develop stronger and more complex. The instructor slowly

eliminates the no longer needed scaffolding that helps the learner as the learner needs less assistance, and the learner becomes increasingly self-directed and self-empowered (Oxford, 1997a).

Vygotsky (1978) believed that isolated learning could not result in cognitive enhancement. He firmly held that social interaction requires learning and cognitive improvement. Knowledge is co-constructed, and more than one person is often included in learning. Vygotsky situated learning in the ZPD, which he suggested as the distance between the actual level of development dictated by independent problem-solving and the level of potential improvement determined via problem-solving under adult supervision or in collaboration with more competent peers. It is evident that Vygotsky asserted that interaction with others and the cultural environment leads to an individual's cognitive progression if interaction occurs within the ZPD. Current theory suggests that language learners and future language teachers will gain chances to improve their cognition by communicating actively with those who are more competent and thereby expanding the conceptual capacity of each other. Thus, more capable students inside the ZPD can offer new data and ways of thinking to peers so that both parties can build new means of understanding. More experienced learners can also discover missing knowledge, achieve new insights through interactions, and grow a qualitatively different way of understanding through this mutually beneficial social process (Nyikos & Hashimoto, 1997).

Though Piaget (1932) asserted that the structure of thinking was not produced by language, he acknowledged that language facilitated its emergence. Moreover, he recognized that social interaction was integral to intellectual advancement. Conversing with others (particularly peers) often promotes some form of cognitive disconfirmation, causing a quest for logical coherence and deliberate attempts to boost comprehension following the cognitive perturbation. In accordance with Kruger's research findings (1992), moral reasoning endorsed the Piagetian idea that symmetrical peer interactions (compared with adult-child dyads) promoted the use of language and, thus, cognitive change and improvement. However, when children have the chance to reflect on their understanding and actively investigate others' perspectives, then, arguably, active interaction with a diverse viewpoint is the key aspect. This could emerge in equal and unequal relationships dispensing that the interaction is not dominated by one party (i.e., that adults or 'experts' are prepared to be subdued).

To Vygotsky (1978), language in cognitive change was a powerful mediating mechanism, critical in the improvement from 'natural' to 'higher' mental processes. Language

has offered the means for reflection and reasoning via interacting with others. Efficient verbal interactions facilitate the involvement of students in higher-order cognitive processes (King, Staffieri, & Adelgais, 1998). These interactions embody catering detailed explanations, asking pertinent questions, providing the partner ample time to think, and utilizing supportive communication skills such as listening, feedback, and stimulation. (Webb & Favier, 1999). In line with Vygotsky's theory, learning occurs during such high-level debate since the interactive process reorganizes and reconstructs the individual's knowledge and thinking, which would not happen to the same extent if individuals worked alone.

The importance of active thinking in the course of cognitive change points to a shared foundation for the theoretical orientations of both Piaget and Vygotsky (Webb & Favier, 1999). From the Vygotskian viewpoint, achieving rational explanations from a more competent peer helps the less capable child to rectify misconceptions, fill in gaps in comprehension, improve links between new information and previous learning, and optimize new problem-solving skills and knowledge. Regarding the Piagetian point of view, through reasoning, clarification, and justification, the method of resolving cognitive conflict helps learners to explain or reorganize information in new ways, identify and fill gaps in comprehension, recognize and resolve inconsistencies, enhance new viewpoints, and build more elaborate conceptualizations.

We get to the point that both Piaget's and Vygotsky's theories propose that the advantages of peer collaboration derive from active involvement in interaction and verbal communication with a partner who has a disparate viewpoint, either because of more knowledge or a divergent point of view (Kruger, 1993). When the learner becomes conscious of an opposing perspective, socio-cognitive conflict is formed. Cooperative and collaborative co-construction happens when two people explore the thoughts of each other and build a new, integrated perspective together. For cognitive change to occur, it is cardinal for both theories that peer collaborative interaction concentrates on the content and rationale of what is different.

Theoretically, the cognitive value of peer collaboration for learning relates to two key factors. First, the interaction needs to be with a more knowledgeable partner, or one with a diverse knowledge base, to ensure that the requisite mismatch is needed to facilitate the re-examination of the learner's own understanding that contributes to internal reorganization and cognitive improvement. Second, it is necessary that the learner be an active participant. Active participation in the task and participation in verbal communication, particularly reasoning, tend to be the promoting mechanisms by which cognitive restructuring and, hence, cognitive improvement and change occur (Fawcett & Garton, 2005).

2.4.2 Socio-cultural approach

Sociocultural theories are based on the social constructivist model, which considers that knowledge is socially constructed and transmitted by people through interaction. Sociocultural theories demonstrate learning and improvement as part of social activities and as a learner communicates with other individuals, objects and events in a collaborative atmosphere (Wang, 2011). This approach is rooted in the ideas of Vygotsky; in his theory, he focused on the contribution of social and cultural factors to the individual's cognitive development (Kouicem & Nachoua, 2016).

Basically, learning is a social practice. Learning and enculturation are not bounded by the brain or mind of the person but are inherently social efforts rooted in society and reflecting its knowledge, viewpoints, and beliefs. People build their knowledge not only from direct personal experience but also from being informed by others and influenced by social experience and interaction (Cummings, 2001). Learning takes place as individuals engage in their community's sociocultural activities, transforming their awareness and accountabilities as they participate. In a group of learners, young and adult learners are active in structuring the inquiry conversationally, albeit generally with asymmetric roles. (Oxford, 1997a).

To Dewey, learning is mainly social and takes place through language (Diggins, 1994). Knowing is not accomplished by an outside observer but is instead constructed by a participant, with society dispensing a reference point or theory to make sense of experience. (Dewey, 1925/1981 as cited in Oxford, 1997a). Vygotsky believed that individuals' development, entailing their thoughts, languages, and reasoning processes, is a consequence of culture. These skills and abilities are boosted through social interactions; accordingly, they represent the shared knowledge of a provided culture. Vygotsky studied the development of children in their environment, and via their contact with others, he discovered that what is offered and what happens in the social environment (e.g., dialogues, acts, and activities) facilitate children's learning, improvement, and growth (Li & Lam, 2013).

One of the outstanding features of sociocultural theory is viewing learning as social in nature, where meaning is extracted from language use within the social context (Behroozizad, Nambiar, & Amir, 2014). Several scholars have studied how sociocultural theory applies to classroom environments. The researchers admit the sociocultural values in the learning and improvement of students. In general, these studies imply that students develop their learning via the teacher's guides and discussion among their peers. The sociocultural perspective enables

students to switch from other regulations to self-regulation, from dependence on others to being more independent (Saleem & Azam, 2015).

In accordance with Mitchell and Myles (2004), sociocultural theory considers learners as active constructs of their own learning environment. In this sense, learners are in charge of their own learning environment, and the environment can cultivate and scaffold them (Aimin, 2013). Therefore, in an educational context, instructors are viewed as active constructors of their teaching environment. Whatever instructors consider learners' language learning influences their teaching environment, although learners are the main focus of the teaching activities. Instructors can rebuild their viewpoints of ESL/EFL through practice and development in language learning and teaching (Behroozizad, Nambiar, & Amir, 2014). The core principle of the theory of Vygotsky (1978) is that learning occurs at interpersonal and intrapersonal levels.

To begin with, the learning process takes place at an interpersonal level that corresponds to the social level between individuals and artefacts mediated by conceptual and material tools. Next, the learning process crops up on the intrapersonal level as part of human comprehension. This process is called internalization. As a consequence of the phase where interpersonal and intrapersonal levels mutually notify each other, the interpersonal processes become intrapersonal. Without apparent external assistance, individuals become able to carry out their own actions. Internalization is a mechanism that develops through psychological and mental, and material tools (Valtonen, 2011). So, all the higher functions emerge as genuine relationships between people. Therefore, the essence of learning through social contact is cooperation. The learner should not be isolated from his environment but should be fostered to integrate with other learners, teachers, or other sources of information, such as books, journals, computers, etc. These interactions afford the learner the language used for learning communication. The instructor's significant role here is as a facilitator or mediator coordinating the learner's ideas (Kouicem & Nachoua, 2016).

Vygotsky brought in the idea of the ZPD (see Figure 6), the realm of potential learning that each learner could achieve in ideal conditions and with the best possible help from the instructor and the environment within a given developmental period (Oxford, 1997a). Vygotsky (1978) defines the actual level of development as what the learner can do by himself and the potential level of development as what he/she can do when someone else supports him/her (Sousa, et al., 2019). This indicates that the tasks that are too challenging for learners to master alone can be learned with guidance and assistance from adult guidance or in collaboration with

more capable peers. In agreement with Vygotsky, the upper limit in the ZPD can only become fruitful with interactive social help from peers and instructors (Li & Lam, 2013).

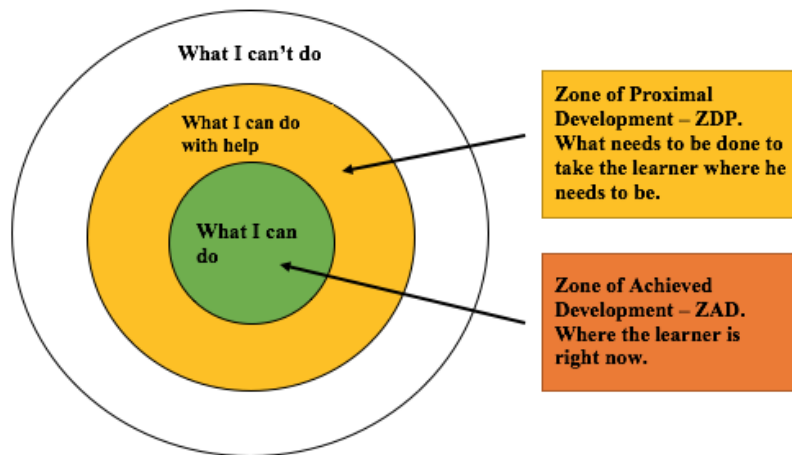


Figure 6: Vygotsky's Model of the Zone of Proximal Development (Retrieved from Khan, 2018, p.14).

One of the most outstanding ideas of Vygotsky about CL is ZPD. In this theory, he argues that a learner is able to accomplish his/her tasks when he/she is led by more competent peers or adults' direction. In addition, the theory of ZPD has a social basis, which is that the learners' cognitive system comes from their contact with social groups and cannot be isolated from their social life (Novita, Kurnia & Mustofa 2020). In line with the theory of Vygotsky, the psychological structures are not available in the person's mind; instead, they are created as a consequence of interaction with the social context. In other words, the occurrence of mental functions relies on social interaction (Behroozizad, Nambiar, & Amir, 2014).

When students socialize and communicate with their peers and instructors, they engage in activities with them. The situation helps the individual learners to communicate with the other participants and be part of the shared culture community. As a result, the student's cognitive growth will either occur through taking part or "through participation in an ongoing social world" (Lave & Wenger, 1991, as quoted in Novita, Kurnia & Mustofa 2020, p.16). To rephrase it, from the viewpoint of the ZPD, personal knowledge is not something to come out itself to mind. Though, It is an aspect of cultural practices. In addition, the emphasis is not only on the process of obtaining a new notion; however, important characteristics such as interacting, sharing practices of learning or meaning-making activities (Stahl, 2006), and learning from

collaborated problem-solving attempts are necessary for a learning process (Novita, Kurnia & Mustofa 2020).

Brown (1994) stressed that various ZPDs should be included in the classroom because learners have different development rates and are not cut from a single "cookie-cutter." (Oxford, 1997a, p.43). Furthermore, Dillon (2004) emphasizes the value of a more reciprocal relationship between the learners and the environment. This means that the learner also influences the environment. In other words, working on the ZPD is not only a "change" encountered by the learner. Learning is grounded in interactions and transactions between individuals, society and culture (Valtonen, 2011).

Scaffolding is another term closely related to the ZPD (Sousa et al., 2019). To Stone (1998), one of the most fundamental aspects of scaffolding is the role of the knowledgeable individual who affords the learner guidance to advance and accomplish complex tasks, which have perceptual, cognitive and affective components. Scaffolding is characterized as a teacher's academic support to take the learner to the next stage of comprehension. Sawyer (2006) argues that scaffolding is the support provided to learners during the learning process to assist them in achieving their learning objectives (Kouicem & Nachoua, 2016).

It is not just the teacher who is the active participant in the student-teacher interaction process; more significantly, the learner becomes the active participant throughout the scaffolding process, which, in turn, is a dynamic reciprocal process. Via communicative interactions, both instructor and learner develop a shared understanding in which the student, as a beginner, learns from the teacher, as a more experienced one. In line with the dynamic nature of scaffolding, it is argued that it is not advisable to implement the same scaffolding techniques in various contexts since it depends on the situation encountered, such as the type of task/activity, the responses of students, and the degree of competence (Behroozizad, Nambiar, & Amir, 2014).

Based on the Vygotskian point of view of scaffolding, an instructor seeks to promote and improve independent learning since the teacher can identify the betterment of the learner's ZPD. Consequently, through collaboration with the instructor, learners' mental processes and functions should be formulated. While completing language-learning tasks, instructors and learners enjoy a shared problem-solving experience in collaborating and interacting with each other. Murray and McPherson (2006) proclaimed on teacher action research and attempted to manifest the scaffolded activities of teachers that were planned to ease learners' reading and navigation of the Web. Their findings suggest that the successful reading and navigation of

learners depend on teachers who are encouraged to include both productive and carefully planned scaffolded activities in their instruction to enable learners to become autonomous Web navigators (Behroozizad, Nambiar, & Amir, 2014).

Ideas such as ZPD and scaffolding bring to light a radically different view of a teacher who is more of a learning facilitator than a source of information. The learner often has more accountabilities, such as dictating their learning objectives, being a resource of knowledge for peers, and actively collaborating in the learning process. This change in roles facilitates individualized, differentiated and learner-centred styles of teaching and, when followed by successful pedagogical practices, has the potential to become a powerful option for reforming current educational structures and creating environments where several different learners gain a deep understanding of important subjects (Polly, Allman, Casto, Norwood, 2018).

So, sociocultural theories offer a unique structure for understanding learners' learning. The general trend in teaching knowledge literacy is to minimize the time spent by teachers and increase the time spent interacting with learners as learners perform classroom learning tasks. We need to practice CL exercises in information literacy teaching instead of conventional approaches. Via collaborative activities and interactions, teachers can offer learners efficient support that will enable them to perform at higher levels than they would otherwise (Wang, 2007).

In a nutshell, based on the aforementioned study of socio-constructivist and sociocultural approaches, we can infer that each of these approaches defines learning from various angles. The socio-constructivist approach demonstrates learning from an individual point of view with cognitive conflicts resulting in assimilation and accommodation, reorganizing and generating learners' knowledge structures. Sociocultural approaches describe learning from a cultural perspective as the appropriation of diverse tools enhanced via the history of culture. Learners will be capable of using the tools and improving them further. Both socio-constructivist and sociocultural approaches focus on the essentiality of collaboration activities in the learning process. The sociocultural theory views collaboration as an instrument for learners to bridge the situation between various forms of understanding, including adjustments between participants and stretching shared understanding. The socio-constructivist theory is the same phenomenon as resolving cognitive conflicts, indicating that students struggle with various interpretations and figure out ways to comprehend and overcome these differences. Both theories also emphasize the value of learners' previous skills and level of knowledge to understand a learning situation and absorb and practice their knowledge.

According to sociocultural theory, the new areas must be within learners' ZPD. Socio-constructivist theory refers to the same challenge with learners' sufficient knowledge structures so that they can appreciate, interpret and learn about new circumstances. These processes are supposed to contribute to learning. In agreement with sociocultural theory, we can speak about appropriation, and according to the socio-constructivist approach, we refer to assimilation and accommodation. All these terms relate to a circumstance where learners can use the studied contents as part of their activities (Valtonen, 2011).

Chapter Summary

This chapter, Collaborative Learning, the Impacts of Collaborative Learning on Students' Language Learning, Collaborative Learning Vs Cooperative Learning, Theoretical Background, Socio-constructivist approach, and Socio-cultural approach has been presented. In the following chapter, a review of the Literature will be presented.

Chapter 3

Literature Review

3.1 ICT and Collaborative Learning

We live in a technologically advanced world where the advancement of ICTs has altered our way of life and affected many fields of knowledge. In education, ICT has proved to be a valuable resource for teachers and students (Duță & Martínez-Rivera, 2015). The occurrence of the Internet and other ICTs has expanded the possibilities for communication, collaboration, and learning. Its multimedia features and fast worldwide access to information open-up new opportunities for knowledge sharing and group work. Consequently, it causes an increase in interest in collaboration tools and educational technologies. However, the effective implementation of ICT in education is counted not only on the technology's features and functionalities but also it relies on the pedagogical approach practised. For that reason, both social and cognitive aspects of learning must be considered in addition to technological ones (Piki, 2008).

The ICT's convenience has changed conventional face-to-face CL; students can work cooperatively to complete their learning assignments. As a result, several researchers have invested in Online Collaborative Learning (OCL) techniques. Wang (2010), for example, suggested the use of an online collaboration network for interactive learning. In order to increase the efficacy of team teaching, Cooper and Cowie (2010) reported that CL enables students to mutually build new knowledge together (Kuo, Chu & Huang, 2015). Furthermore, a few researchers looked into factors that encourage or hinder successful CL in the online environment (e.g., Brindley, Walti, & Blaschke, 2009; DeRosa & Lepsinger, 2010; Dirkx & Smith, 2004; Gabriel, 2004). Several studies have looked at students' perceptions of CL's benefits, their taking part and sense of community in CL, and the impact of group settings on CL outcomes (e.g., Du, Zhou, Xu, & Lei, 2016; Ellis, 2001; Gabriel, 2004; Shea et al., 2001). Others have investigated the types of interactional techniques that are needed for CL to be efficient and fruitful, as well as the issues that students experience when studying in online learning groups (e.g., An & Kim, 2007; Dirkx & Smith, 2004). There is also a growing number of research into the characteristics of online instructors (e.g., subject matter and pedagogical knowledge) that promote the incorporation of collaborative groups in the online environment and how instructors can design practical OCL activities for students (DeRosa & Lepsinger,

2010; Driver, 2002; Garrison, 2006; Murphy, 2004 as cited in Kumi-Yeboah, Dogbey & Yuan, 2017).

The practice of CL is increasingly expanding in online education since many curriculum developers, and instructors of online courses realize its positive impact on students' learning. As a result, they are implementing it as one of their favourite instructional strategies in the online world. Some of the commonly cited benefits of CL in the online environment embody improving critical thinking and problem-solving skills, improving self-reflection skills, and constructing knowledge and meaning. It has also been displayed that skills learned through OCL are highly transferable to team-based work environments, which are crucial for the 21st-century workforce. Collaboration between teachers and students also helps to solidify a student's interest and enhance their knowledge in particular subjects (Ashong and Commander (2012) as cited in Kumi-Yeboah, Dogbey & Yuan, 2017).

Using ICT in CL would make it easier for individuals to collaborate easily with someone far away than with someone in the same room. Technologies for e-collaboration allow individuals to bring different skills to joint or group projects that eliminate time, distance, and resource barriers. ICT is not intended to replace face-to-face communication but to supplement it by enabling individuals to interact at anytime and anywhere. ICT as a collaborative technology provides features for group work coordination, tools for tracking progress and providing feedback, libraries of solutions and best practices, and meta-information (Ezekoka, 2015). ICT also affords the motivational aspect of collaborative projects. With the use of ICT, students can support one another and work collaboratively with a computer is more straightforward than working with conventional materials (paper and pencil); the process becomes more applicable and practical for them (Valcárcel, Basilotta & López, 2014).

Using ICT to promote conventional CL approaches has its benefits. To begin with, it allows for many-to-many communication, which is not feasible in a typical classroom. As a result, the discourse pattern of the teacher initiating, students responding, and teachers evaluating is altered, requiring the teacher to assume the role of discourse controller. In an online forum, the social presence of a teacher or a dominating individual is reduced. It provides more students with opportunities to engage in debate. Furthermore, the online environment records the discussions, allowing students to revisit and reflect on their previous discussions. Classroom discussions, on the other hand, are transient; many promising ideas are lost once students leave the classroom. The poor side of computer-mediated communication is that students cannot rely on nonverbal signals in their communication, which may lead to

miscommunication if students cannot sufficiently express themselves in the text (Chai & Tan, 2010).

ICT offers several ways to underpin teaching and learning. Since the late 1960s, along with the optimizing theories of learning and the advancement of technology, the ways of using ICT to support learning have changed. The enhancement of learning with ICT has been optimized from software supporting learners' individual learning based on mechanical drills to more developed micro-worlds, cognitive tools, and learning environments. ICT in teaching has appeared in different forms, from conventional computer labs and presentation technologies to online learning environments, social software, and personal learning environments. The betterment of mobile technology has also afforded new, flexible ways to employ ICT to support learning. In particular, the benefits of ICT to promote the CL activities of learners. Various ICT solutions offer tools for endorsing CL in a face-to-face teaching environment and within distance learning. It has also been suggested that ICT transform educational settings into communities for building knowledge (Valtonen, 2011).

The role of collaboration is currently indispensable in teaching and learning with ICT. In accordance with Scardamalia and Bereiter (2008), "Collaboration has become something of a mantra for Knowledge Age education". Generally, CL goes well with the emergence of ICT, particularly with web 2.0. With the use of web 2.0, several online environments have been created for educational purposes, i.e., social software has enabled its users to create content, collaborate, and communicate effectively. To Ferdig (2007), these instruments have abundant possibilities that are in line with the theories of CL. Various mobile devices also offer instruments to support CL. While the use of mobile technology is often related to one-to-one computing, i.e., one computer for each learner, the goal is still to encourage collaboration (Valtonen, 2011).

As reported by Becta (2008), ICT has some beneficial uses to support CL; for instance, with the use of ICT in CL activities, students' involvement and partaking are raised, especially for quieter students who can work collaboratively online without fear of raising questions in front of the class. Students are also able to express themselves via less conventional ways like video. It affords opportunities for social networking, stimulating online dialogue and debates amongst learners outside school hours. Additionally, tools can be accessible anytime and anywhere, inspiring some learners to expand their learning by further exploring the topics that concern them. It also enables students to post their work online, which makes them feel a sense

of ownership and involvement, and this can inspire attention to detail and increase the overall quality of work. Some teachers publish work to promote peer evaluation (Ezekoka, 2015).

Moreover, ICT can be used as a tool to facilitate the creation of learning environments and learning situations to put the previously mentioned theories of learning into practice. Since the use of ICT in the field of education, it has been applied as a source for collaborative activities, inquiry, dialogue, etc. The source can be a straightforward web page as a shared point of reference or a more complicated simulation, virtual world, game, etc. ICT also offers diverse platforms for collaborative and interactive activities that promote students' shared knowledge construction. These platforms can be used to endorse collaborative activities in classrooms or online classes, such as Moodle, Blackboard, Blogger, Wikispace, etc. In Valtonen's opinion, an interesting "new" improvement in ICT and education is the plausibility of capturing, bringing up and sharing student knowledge, knowledge gaps, unique interpretations, opinions, etc., as resources for further learning (Valtonen, 2011, pp. 12-13).

Social software is another exciting feature of online environments; through this social software, there is the possibility of interconnecting learners and teachers with each other using feeds such as Really Simple Syndication (RSS) and ATOM. Such connections help students and teachers be more aware of each other's work, ideas, and aims. Tools used in educational settings for learning purposes can be integrated into daily online environments and experiments. With RSS feeds, the advancement, for instance, in the blogs utilized for learning projects, can be brought to the regular software of students, such as Facebook, to bring educational settings closer to the world of students outside school. In line with Valtonen's expectation, easy access to and active participation in educational settings activities, especially the activities that learners carried out with their classmates, will encourage and inspire the involvement of students in their educational settings to work. A greater existence of peers' work will also offer active outlets for communication, changing ideas, and knowledge building (Valtonen, 2011).

In line with the Australian Government Report (nd) that sheds light on some positive uses of collaboration in teaching and learning. As it was reported, several technological tools can be used to support CL in all education sectors. For example,

- Wikis: are sets of related web pages that can be edited by anyone, facilitating the production of shared and collaborative content. A good example is Wikipedia.
- Microblogs: Brief updates posted by users for other users to see the post regarding any chosen topic. Twitter is a good example of a microblogging service.

- Social Networking Services: Web services that enable users to communicate in a number of ways, including sharing images, public and private messaging, and sharing profile information and information about themselves. The world's biggest social networking site is Facebook.
- Virtual Worlds: Software applications that offer users the experience of being agents with their "self" portrayed by an avatar or online persona in online environments.
- Online Games: Games played over the Internet with and against other users (Ezekoka, 2015).

Besides, both Farren & Tweedy (2002) claim that videoconferencing can be used to boost CL. 'Video conferencing' is an ICT application that requires the use of suitable hardware and software to allow two or more individuals to see and hear each other simultaneously in different places, occasionally even sharing computer applications for collaboration. So, the standardization and expansion of these technologies have profoundly influenced how users want to interact, learn and work. In contrast to conventional lectures, the Internet and online tutorials provide a more expansive world for users to explore. This dispenses both the freedom and flexibility to the students to learn at their own speed, and they will find it easier to focus and learn than to follow the instructor's thought process during a lecture (Ezekoka, 2015).

3.2 How Collaborative Learning Through ICT Use Improves Students' EFL Performance

ICT has been a vast enhancement in education and its role and function in and out of the classrooms. ICTs are shifting the way we think about education regarding the challenges we face and how we can solve them using different sets of resources made available by technology. ICT is an ever-growing aspect of language learning, as it is undoubtedly a core component in education, from its broader meaning of education to a more fundamental area of language learning. Starting with Computer-Aided Language Learning (CALL) and progressing to the Internet or Web-based language learning, ICTs in language learning are now more than ever available via digital platforms or Apps on our mobile devices. It is no longer a matter of whether we can use ICT in language classrooms; instead, it is a question of how best we should use it and, as a result, how best we can digitalize language learning parallel to our language course objectives (Zhang, 2018).

With the rapid development of information technology, many researchers have tried to apply different online instruction techniques to dispense students with a more effective way to

learn a second/foreign language through the Internet. Scholars have also implied the essentiality of managing students' learning conditions, addressing their weaknesses, and leading CL activities. Significant research has been conducted on students communicating and learning online with their peers. It can be seen that learning by sharing information and exchanging knowledge among peers could not only boost students' competitiveness but could also stimulate their learning performance (Kuo, Chu & Huang, 2015).

Social Constructivism has proved the value of CL in learning. According to Johnson 1989, learning is most successful when students can work collaboratively in sharing their opinions, debating and challenging ideas with others, and collaborating on a group solution to a given problem. To Zhu, CL is a social interaction that involves the acquisition and sharing of experience or knowledge between learners and instructors. CL in an online environment belongs to online groups or communities, which refers to instructional activities that encourage students to work together online to achieve shared educational goals (Razali et al., 2015).

As the benefits of collaboration in education are apparent, incorporating technology to promote CL is critical. Positive interdependence, individual responsibility, face-to-face promotive interaction, social skills, and group processing are part of the CL model (Johnson & Johnson, 1989). When these components are carefully organized into the instructional format, the development of students' engagement, encouragement, and accountability is observed (Assinder, 1991). CL's student-centred approach results in students' autonomy. The positive influence of CL has far-reaching consequences that extend beyond the classroom and into participants' professional and personal lives (Kupczynski et al., 2012).

In addition, ICT use has been associated with improved learning as it encourages better interaction between teachers and students. For Carrió (2007), CL is a very beneficial way of teaching because students and teachers work together, whatever the subject matter. According to him, if we applied technical innovations to this model as they happened, we would at the same time improve learning (Valcárcel, Basilotta & López, 2014). To illustrate, incorporating technology into the language classroom encourages learners to take a different view of learning processes. Stanley (2013) claims that some of the advantages entail accessing immediate information and real interaction, publishing the work of learners as a motivational strategy, and counting on a wide variety of functions technological devices feature (Díaz & Toledo, 2017).

Online collaboration enables students to exchange ideas and perspectives beyond time and space constraints, stimulates knowledge co-construction, assists students in engaging in broader, more complicated, and cognitively challenging discussions, and formulates the

richness and quality of learning experiences that result in effective learning. Active student-student interaction in the pursuit of collaboratively solving an assigned task in a technology-mediated environment is the prominent aspect of promising online collaboration (Jung, 2013).

According to Harasim (2012), collaborative online education is a learning model in which students collaborate to build knowledge innovatively and search for the conceptual knowledge needed to solve a provided problem. OCL encourages students' active participation, and the online tutor serves a vital role not only as part of the group but also as a connection between the learning group and the knowledge about the particular subject (Stoytcheva, 2018).

Previous research has declared that OCL has more characteristics than face-to-face CL, which makes it a more efficient learning approach. OCL enables students to learn in an interactive, simulation-based, innovative, and cumulative manner. Furthermore, OCL allows students to communicate with other students at any time, access a variety of data sources, experience virtual travel, and increase their learning efficiency and performance (Al-Ammary, 2013). In addition, it provides a variety of new ways to support learning by enabling students to share and exchange their ideas and their own digital products (Laurillard, 2009).

Recently, distance learning has made many possible groundbreaking ways to use CL in virtual pedagogical settings. According to studies, group work facilitated by computer-mediated collaboration enhanced learners' learning performance, interaction, and critical thinking. Incorporating CL elements into distance learning is efficient, for example, via organized synchronous and asynchronous group discussions in achieving the objective of positive interdependence, individual accountability, and community processing, while interactive journals, chat, and blogs are effective ways to encourage interaction and social skills. Through courses that promote the formation of active online communities, adult learners gain valuable and long-lasting experience. Besides, with the rapid growth and demand for online education, it becomes necessary for virtual teachers to adopt feasible instructional techniques and formats that are effective in conventional educational settings. In fact, CL has been found to contribute to higher achievement among students compared to individualistic and competitive learning, even when diverse strategies are utilized in diverse environments (Kupczynski et al., 2012).

Passig and Schwartz (2007) conducted a study comparing the quality of collaborative academic writing assignments in face-to-face classes and online classes. For most of the parameters analyzed, the findings showed that the quality of online collaborative writing was superior. The most significant variations were found in aspects of the writing's originality and

intellectual maturity. The structural organization of the texts was the most notable positive feature, which corresponded to the findings of other studies. As a result, online collaborative writing technology enables students to produce more consistent texts and draw conclusions without the need for extensive negotiations as in a face-to-face situation. There is also a desire to make more drafts, which develops the final product's quality (Álvarez & Bassa, 2013).

In their research on computer-supported CL, Schellens et al. (2007) discovered that when learners partake effectively in discussion groups, their grades are positively affected, and their test scores are improved. Students in online collaborative groups are engaged in class and often connected outside of it. Individual learning caters to flexibility, while CL encourages both flexibility and the underpinning of a learning group. In a study to assess the efficacy of threaded discussions in creating CL, Cox and Cox (2008) discovered evidence that interaction among learners in an asynchronous learning environment contributes to a group of learners. Further, in a comparative analysis of online learners and learners in a large lecture hall, Rabe-Hemp et al. (2009) claim that online students showed more preparation time, communication with their professor, and in-class participation than face-to-face students (Kupczynski et al., 2012).

According to research, the importance of technology extends beyond employment by involving students in related collaborative projects via various technological resources. It has been shown in studies that collaborative work can significantly improve achievement and involve students in a more profound learning cycle. According to recent studies, technology engages students and can promote group work, provide feedback from peers and educators, and act as a tool for collecting data by students and teachers (Humes, 2015).

As an example, in working with the learners who were enrolled in a master of an education program on collaborative activities, Gabriel (2004) discovered that M.Ed. learners in her online class gained a deeper understanding of the recursive nature of knowledge construction (review, reconsider, and revise one's work) and growing confidence in their own ability to learn effectively in an online community environment (i.e., their viewpoint of self-efficacy heightened as the course moved forward). Similarly, Ellis (2001) recognized three positive aspects of online collaborative work: "1) access to peer knowledge, 2) availability of other students to provide feedback, and 3) opportunities to reflect on exchanged messages as positive elements of online collaborative work". According to Shea et al. (2001), students of online courses who participate in collaborative assignments are more pleased with their learning experiences (Kumi-Yeboah, Dogbey & Yuan, 2017, pp. 6-7).

Kormaz (2012), citing Tu (2004), contends that collaboration is necessary for establishing online learning communities. Research has explored that well-designed collaborative instruction has a consistently positive impact, resulting in an average increase of seventeen per cent in individual student learning. Furthermore, creating a Pervasive Learning Environment (personalized learning by technology) or an online learning community inside classrooms has improved students' participation and test scores (Humes, 2015). In agreement with Zhu (2012), OCL can help students build their knowledge. His study focused on the student's satisfaction with the online learning environment, their online performance, and knowledge building through online group discussions in two separate cultural contexts (Flemish and Chinese). The findings revealed a relationship between student satisfaction and academic achievement in an innovative e-learning environment. It was also demonstrated that online learning systems could enhance students' CL activities and knowledge-building through group interaction (Razali et al., 2015).

According to Warschauer (2007), technology-mediated synchronous communication between students, with or without the assistance of a tutor, has become common in English composition classes due to the numerous benefits it provides. Students, for example, have been shown to take charge of conversations by talking to one another without waiting for approval from the instructor, which promotes debate and collaborative relationships. Hence, the students improve as authors because they have an audience and a real reason to write (Faigley, 1990). In this regard, Warschauer (2007) points out that talking electronically, while not the only way to crack teacher-centred discussion, is an efficient way of achieving this (Álvarez & Bassa, 2013).

Along this line of thought, Davoli, Monari, and Severinson (2009) investigated the use of three diverse educational platforms (Ping Pong, Blackboard, and Moodle) for interactive writing work in EFL/ESL learning contexts that incorporate face-to-face and distance education. The authors found that students' attitudes toward writing are influenced (positively or negatively) by their use of platforms. Students claimed that their writing has become more formal as well as spontaneous. This contradiction is linked to the fact that the online medium is more public and less direct than a conventional classroom. In addition, users implied that they spent more time using the platforms' asynchronous tools than they did in face-to-face classes to comment on the work of fellow students taking the same topic.

On the other hand, some students said that using the platforms made it easier to connect with other students. This was especially true for students who were shy or had a disability (such

as partial sightedness). Furthermore, some students argued that interactions on the platforms were more "democratic" than interactions in face-to-face classes because, on the platforms, everyone had an equal opportunity to express themselves, and they were all equally important (Álvarez & Bassa, 2013, p. 258).

The discussion board tool is one of the tools that has proven to help promote and improve CL in an online environment. An advantage of discussion boards is the important learning that can be achieved in an asynchronous environment. Collaboration in an asynchronous environment provides flexibility, whereas synchronous groups rely on each other. In online learning, asynchronous formats encourage analytical debate responses. The discussion board, which is an asynchronous interaction tool, encourages social interaction where information and comprehension are discussed, hence offering an efficient CL platform. In assessing online collaboration tools. Havard et al. (2008) figured out that learners find the discussion board to be "flexible, convenient, and efficient" because of its asynchronous format. There are a variety of ways of using discussion boards with groups of students, including planning purposes, feedback, and social interaction (So, 2009). Discussion boards have traditionally been used for groups to prepare their work before presenting it; they may also be used for teacher or peer-to-peer feedback, which is vital for learning (Ku et al., 2004). Additionally, the threaded discussion board facilitates student interactions and collaboration (Prester & Moller, 2001). Furthermore, the discussion board serves as a forum for students to engage and communicate with their peers and teachers for academic and professional purposes (Kupczynski et al., 2012).

With the development of web 2.0 technology Chen (2011) explored the diversity in learners' learning outcomes and satisfaction in a class using an online social networking tool (Facebook) among different learning styles. Four learning styles were used: Diverger, Assimilator, Converger, and Accommodator. In comparison to other learning styles, he discovered that the Converger group performed better and had a more optimistic attitude toward Facebook. According to the Converger group, Facebook encouraged their contact with others and increased content comprehension in the classroom (Razali et al., 2015).

According to Chapelle (2003), Computer-mediated communication creates a type of virtual immersion environment for those who want to engage in it. In keeping with popular wisdom that suggests that if one wants to learn English, one should move to a location where English is spoken. Nowadays, great Internet websites for interaction between English learners provide opportunities for discussion and communication with other English speakers. New

technologies can transform task-based language teaching into active learning by bringing students together to communicate, interact, and build knowledge (Azmi, 2017).

Both synchronous and asynchronous computer-mediated communication systems have several benefits. They can improve the CL experience by reducing social pressures that come with face-to-face participation like "turn taking, dominating discussion, fear of reprisals, and cognitive inertia". Language learners do not feel pressured to provide instant feedback and instead take their time to think of suitable answers. In line with De Ramirez (2010), "Web-based platforms can also provide a safer, more anonymous space in which to learn English,". Beginners may be hesitant to speak up in class or share their writing with their peers in a face-to-face setting (Azmi, 2017, p. 114).

Web technology, especially Internet video links, allows for exposure to nonverbal communication. Learners may make acceptable interpretations of different speech acts and build a sense of contact commonality by using culturally overloaded facial expressions, movements, and posture. This helps them to stop using blenders, which can make contact difficult. Furthermore, computer-assisted communication creates teaching environments that facilitate learning and promote meaning-oriented communication. Learners balance fluency and accuracy while also honing their intercultural communication skills to have authentic dialogues and exchanges with native speakers. As a result, the text-based conversation is a powerful and effective instrument for mediating and learning (Lee, L., 2009, as cited in Azmi, 2017).

Finally, the majority of reviewed studies show that implementing ICT in CL in the language classroom effectively promotes learning, improves interaction and communication, enhances autonomous learning, maximizes targeted outcomes, motivates learners, and helps them improve their performance in the EFL classroom. Adopting relevant and appropriate pedagogies and approaches can make a difference in the EFL classroom, bringing positive improvements and transforming classrooms into open digital learning environments. However, we should recognize the need for careful planning and well-defined objectives while using ICT for CL in EFL classes; otherwise, the time and effort will go in vain (Azmi, 2017).

3.3 Integrating ICT as a tool for CL

As previously mentioned, tremendous advancements in computer-mediated communication technologies may boost interest in CL. ICT could support CL in three ways: (1) as a tool for interpersonal communication to underpin CL strategies used in face-to-face settings; (2) computer-supported collaborative work where students collaborate on a common

document or project; and (3) computer-supported CL where the focus is on supporting CL to facilitate meaning negotiation among a group of learners (Chai & Tan, 2010).

3.3.1 ICT to support interpersonal communication:

Interpersonal communication is a type of communication in which information is exchanged between two or more people, and it is the most common way people engage with one another. The information's source and recipient are two separate and distinct entities (one or many). It entails verbal and nonverbal communication between two or more people, as well as quick replies and feedback from those involved (Volchenkova et al., 2019).

The technologies that support interpersonal communication are synchronous tools like chats, brief messaging, and video conferencing, as well as asynchronous ones like email and discussion boards. Through using computer-mediated communication tools, several CL strategies that were constructed for face-to-face settings can be implemented. For example, Student Teams-Achievement Divisions, Teams-Games-Tournaments, Jigsaw I and II, Team Accelerated Instruction, Cooperative Integrated Reading and Composition, Group Investigation, and Learning Together are just a few of these strategies. Most of these techniques or strategies are implemented in a short amount of time, and technology must enable a student to participate in a small group discussion and then move to a larger group discussion at a particular time. This could be accomplished by using some internet chat rooms. We could, for example, use online chat to assist a Jigsaw classroom (Chai & Tan, 2010). The procedures involved in building a jigsaw classroom were described by Hong and Sullivan (in press):

Every member of every group was responsible for learning all the curriculum material, but individual students had direct access to only their part of the material—the part they were to teach others. Since they had to depend on groupmates for access to the rest of the materials, it became essential for all groupmates to do a good job of communicating their parts of the material...In essence, the students in each group were putting their knowledge together a piece at a time, each student contributing a piece of the jigsaw puzzle of material (Aronson & Patnoe, 1997, p.91).

According to Hong and Sullivan's learning perspective regarding the use of jigsaw, we can get to the point that each group member is accountable for learning a dedicated part of their material. Then, each of them has to teach other members of the group what they learned. By the end, every group member will learn the curriculum materials since they are responsible for teaching each other.

There are strategies that emphasize participation-based learning. Group Investigation and Problem-based Learning, for example. They necessitate more time and can be aided by

asynchronous technologies such as a discussion board. Students choose or are assigned a topic for investigation in Group Investigation; they then divide the investigation into smaller segments, with each student responsible for one part. Before presenting to the entire class, the students discuss their information as a group and synthesize a product (e.g., a report). For example, an online discussion board could serve as a platform for small group debate and material sharing (Chai & Tan, 2010).

3.3.2 Computer-Supported Collaborative Work (CSCW):

Workgroup Computing, CSCW, describes workgroup collaboration using groupware to complete a common duty. Communication, coordination, group decision-making, and cooperative processing of information objects are all encouraged. CSCW addresses how information and communication technologies can be used to support individuals' collaboration at work or in educational sectors to improve efficiency and effectiveness and increase collaboration (Lackes & Siepermann, 2018).

In CSCW, students collaborate on a shared document via computer or networked computers. Wikis is an example of a collaborative effort in which group members contribute to and edit the same set of online documents using a Web browser and simple markup language. In addition, CMap is an online collaborative concept mapping tool. Using an interactive whiteboard face-to-face can be deemed CSCW because students work on the same document.

One distinguishing feature of collaborative work is that, rather than discussing *about* ideas, there is a tangible output at the end of the collaborative session. The technology plays the role of (1) gathering data, (2) tracking the collaborative work's progress, and (3) displaying the work in progress (Chai & Tan, 2010).

3.3.3 Computer-Supported Collaborative Learning (CSCL):

CSCL is a new field of the learning sciences that looks into how individuals can learn together with the use of computers. CSCL is a major concern in education. It takes into account all levels of official education from kindergarten to graduate study, including informal education, such as visiting museums. Computers have become increasingly significant in this regard, with school districts and politicians all over the world aiming to improve student access to computers and the Internet. The idea of stimulating learners to learn in small groups has grown increasingly popular in the broader learning sciences (Stahl, Koschmann & Suthers, 2006, p. 409). Knowledge Forum, a web-based discussion forum, is one example of CSCL on how to promote the knowledge-building process. In comparison, jigsaw classrooms and

problem-based learning may help to create key group skills and in-depth material learning (Chai & Tan, 2010).

CL operates very well on the Internet, integrating Computers into the CL process, putting the learner in the realm of computer-based CL. CSCL is a modern paradigm that integrates learning theories with technological resources; CSCL is focused on a sociocultural view of cognition that proposes the learning process to be inherently social in nature and looks at technology for its ability to develop, facilitate and enrich interpersonal learning contexts. In accordance with this model, ICT's role is to provide new opportunities for social intervention and build CL communities that encourage students to carry out group activities. These activities are incorporated into the actual world and organized with tangible goals. Research in this field frequently points out the need for technology training to be used as a tool rather than as an end in and of itself, a tool whose primary aim is to help students learn more effectively. Helping others learn has to do with having improved communication networks and better resources for exploring the domain that contains critical learning materials (Valcárcel, Basilotta & López, 2014).

CSCL emphasizes student collaboration so that they are not merely reacting to posted content in isolation. The majority of the learning occurs as a result of student interactions. Students learn by asking questions, working together to pursue avenues of inquiry, teaching one another, and observing how others learn. Computer-supported collaboration is essential to a CSCL approach to e-learning includes. It takes competent planning, organization, and implementation of curriculum, pedagogy, and technology to stimulate and sustain productive student engagement and interaction.

Additionally, CSCL is concerned with face-to-face collaboration. A computer simulation of a scientific model or a shared interactive representation are examples of computer support for learning that do not usually take the shape of an online communication medium. The collaboration in this situation is focused on constructing and exploring the simulation or representation. Alternatively, a group of students could utilize a computer to search the Internet for information and then collaborate to discuss, debate, gather and present what they find. Computer support can be synchronous or asynchronous remote or face-to-face interaction (Stahl, Koschmann & Suthers, 2006).

Unlike utilizing computers solely to teach communication, CSCL focuses on students' ability to make meaning. This is accomplished via scaffolding students' conversations. For example, in Knowledge Building, the sentence openers "My Theory is...", "I need to

understand...", and "A better theory is..." are frequently employed. To underpin the debate, a separate set of scaffolding could be created. The main distinction between CSCL and CSCW is that the latter emphasizes the creation of a collaborative output, whereas the former emphasizes the creation of meaning (Chai & Tan, 2010, p. 10).

3.4 Technological tools that Promoting Collaboration Practically to Improve Student's Learning Performance

We live in a digital age where students continually shuffle between study apps, social media sites, and communication platforms. Students can now interact with anyone, anywhere, at any time, with the press of a button (Martino & TeachThought Staff, n.d.). Nowadays, many educational sectors practice the use of both synchronous and asynchronous e-learning. Similarly, synchronous tools like "ZOOM, Google Meet, Facebook Messenger, Teams, Skype, and Skype for Business; asynchronous tools like Moodle, Chamilo, Canvas, Easy Class, Blackboard, Google classroom, GeoGebra classroom, and Desmos; and activity ICT tools like google form, google quiz, and menti meter were popular during the workshops and webinars" (Dahal et al., 2020, p.17). Students can use these technologies to share and collaborate on projects/documents, provide and receive feedback, discuss, teach one another, etc. So, through collaboration, learners are able to improve their knowledge and develop their social skills, like working together in a group.

In this research, we present some of the most common technological tools teachers can use for collaboration during the teaching and learning process.

3.4.1 Moodle:

Moodle is a Virtual Learning Environment (VLE) or learning management system (LMS) that is free to use. It has been designed specifically for instructors. This open-source can be downloaded at (<https://moodle.org/>) and accessed via a web browser on a PC, tablet, or other mobile devices, or there is a free phone app that provides users with structured access to the learning that they require at any time (Aziz et al., 2019). Moodle includes a wide range of site management, user management, and course management features. It offers a variety of collaboration features, such as a forum and a chat room, etc. (Akshay, Sasikumar, Leena & Manoj, 2009). Also, it allows for both synchronous or asynchronous collaboration and interaction. Asynchronous interaction (discussion boards, forums, and wikis) can serve as the course's basis and aid in developing a robust and vibrant learning community (Rice & Nash, 2010).

So far, Moodle has been utilized in higher education. Its strengths include the production and administration of learning objects and the realization of communication tools. Teachers use Moodle to construct courses, discussion forums, chat rooms, resources, and workshops. The system was created to promote social constructionist pedagogies and create an atmosphere encouraging collaboration, connected learning, and meaningful idea exchange (Liu & Shi, 2016).

"All of us are potential teachers as well as learners in a truly collaborative environment," states one of Moodle's design philosophies". Moodle's modules and capabilities are used to create and share learning resources. Moodle has several modules for course management, such as Assignments, chats, Choice, Forums, Glossary, Lessons, quizzes, resources, surveys, Wiki, workshops, and so on, where collaboration may be seen in action. Capabilities are defined for accessing, adding, deleting, and editing the instance of the above modules. Capabilities can be allocated to specific roles in Moodle. Administrators of the Moodle system, teachers, and students are examples of such roles. Administrators can generate new roles by assigning some of Moodle's capabilities. Teachers can collaborate to arrange (prepare) learning materials and lessons and create online and offline quizzes and assignments for assignment purposes (Akshay, Sasikumar, Leena & Manoj, 2009).

In Moodle, the instructor can centralize all discussion activities so that students can learn to collaborate while posting papers, reading and commenting on their peers, and peer-reviewing papers and other work (Rice & Nash, 2010). Moreover, teachers can create customizable material for their online courses that include text, graphics, images, and videos for collaborative or personalized student activities. Moodle, like the other e-learning platforms, described previously, is accessible from anywhere with an Internet connection, allowing students, staff, and parents to access a wide range of resources, activities, and school information anytime. This Moodle feature is handy for students who cannot attend class due to various circumstances; it allows them to access all the information delivered in the classes they have missed. Moodle can also make it easier for students to access homework materials, assignments, and other learning tools that educators have made available (Aziz et al., 2019). Besides, with the use of Moodle, students are able to collaborate by responding to a forum post, conversing with classmates about course content, brainstorming in wikis, and seeing or checking each other's work, which leads students to receive a large amount of input and opportunities as output (Akshay, Sasikumar, Leena & Manoj, 2009).

The followings are some strategies and ideas for providing collaborative spaces for groups to work together in Moodle.

3.4.1.1 Groups

Using groups in Moodle enables teachers to add a new dimension to interactive activities by providing a private or shared space for groups of students to debate and collaborate. Teachers may control how public groups' actions are based on their goals for an activity.

In Moodle, there are three group modes that teachers can select when adding or creating a new activity, as in the following:

- **No Groups** - without any restrictions, every student in the class participates in an activity.
- **Visible Groups** - students in this group are arranged into groups and can interact with members of their own group and read but not interact with other groups.
- **Separate Groups** - Students are sorted into groups and can interact with one another inside their groups, but they cannot see what is happening in other groups (See Figure 7).

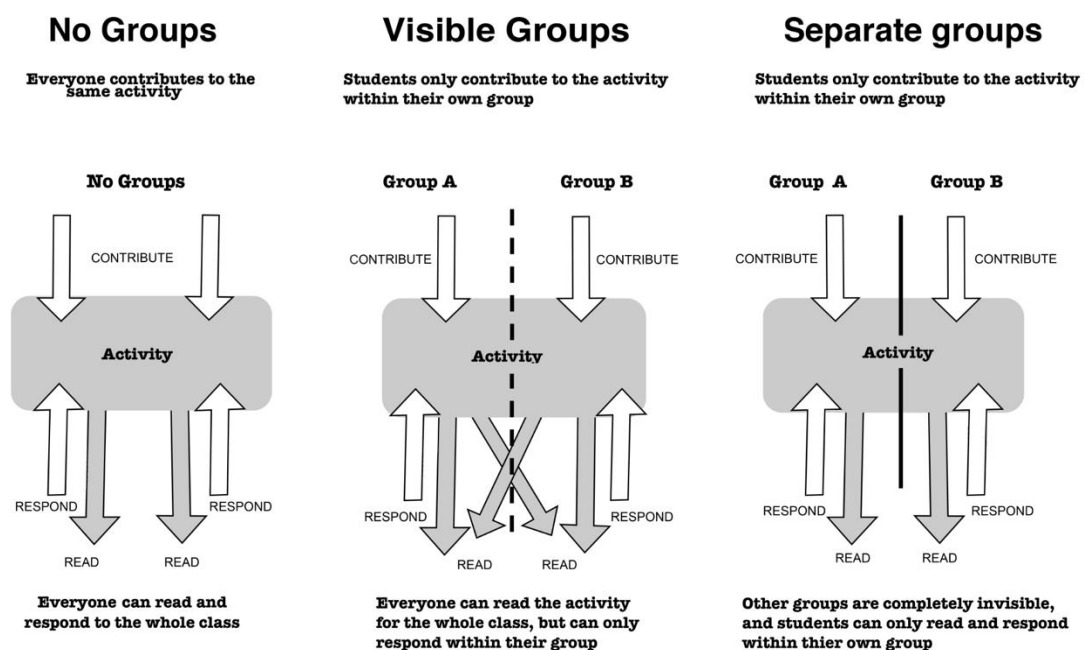


Figure 7: Group modes in Moodle (derived from Information Technology, 2021, ¶ 2-3).

So, instructors can use the groupings mentioned above according to the desired learning aims. To illustrate, *Separate Groups* can be used to describe how to set up activities. When

teachers want student groups to be able to see and read what other groups are doing, they can use *Visible Groups*. Teachers can always alter group modes, so switching from *Separate to Visible Groups* would be excellent if the teacher had groups working on a project throughout the semester and then wanted to share their work with the whole class at the end of the term (Information Technology, 2021).

3.4.1.2 Forum

The forum is a collaborative activity tool that allows learners and teachers to post comments and exchange ideas. The teachers, other learners, or both can grade the forum posts. As a result, in an online setting, a forum can play an important role in effective communication and community building. We can even use forums in educational settings for a variety of innovative objectives (Dahal et al., 2020).

In an e-learning setting, users can create and contribute to an online community with a forum. Teachers can use forums in various creative ways, but keep in mind that the techniques for teaching (content sharing) and student collaboration (content creation) are different.

Forums are an appropriate choice for students who wish to collaborate on information and interact with one another. Students can engage in threaded discussions, share files, collaborate and explore topics, and write together. Moodle comes with five different forum kinds, some of which are ideal for content exchange and assessment and others for collaboration (Catalyst, 2021) (See Table 8).

| Forum types for content sharing and assessment | Forum types for student communication and collaboration |
|--|--|
| <ul style="list-style-type: none"> • A single simple discussion | <ul style="list-style-type: none"> • Standard forum for general use |
| <ul style="list-style-type: none"> • Each person posts one discussion | <ul style="list-style-type: none"> • Standard forum displayed in a blog-like format |
| <ul style="list-style-type: none"> • Q&A forum | <ul style="list-style-type: none"> • / |

Table 8. Types of Forums in Moodle (Catalyst, 2021, ¶ 4-5).

Since our focus is only on group discussions and collaboration, we only provide information regarding the use of forums for group work and discussion.

3.4.1.2.1 Using Forums for Group Discussions

A forum is an excellent choice for groups that want to interact, collaborate and co-create material by participating in group conversations, uploading files, and commenting on or responding to one another's posts. Based on the teacher's learning goals, he/she can establish a more planned activity (where teachers select the topic or manage how learners contribute) or leave things more open so that students can take the lead. The standard forum for general usage is the most open forum type. This forum type is ideal when teachers need a place for groups to plan tasks, brainstorm ideas, or provide feedback to one another.

To set up a group discussion forum, teachers need to add a Forum activity with the following settings: they must first choose the *Standard forum for general use* as a forum type. Second, for the Group Mode, the teacher can select the *Separate Groups* (it is suggested to provide groups privacy and avoid confusion). Last, *Assign to grouping*; it is optional but required if the teacher intends to use various groups throughout the course (Information Technology, 2021).

3.4.1.2.2 Using Forums as a Group Blog

Students can also use forums to produce posts that are listed chronologically, similar to how blogs work. This format is better for group members who want to contribute regularly and have their postings commented on by the rest of the group.

To set up a group blog forum, the teacher needs to add a Forum activity to the course with the following settings: first, the *Standard forum in a blog-like format* is demanded to be chosen as a forum type. Then, for the Group Mode, the teacher can choose the *Visible groupings* to encourage group sharing, but *separate groups* are also suitable. Finally, *Assign to grouping*; this is only necessary when the teacher uses various sets of groups in their course (Catalyst, 2021).

3.4.1.3 Wikis

A wiki page is a web page that the entire students in the class can create together, right in the browser, without knowing HTML. A wiki begins with a front page. Each student can add other pages to the wiki by simply linking to a page that does not yet exist (Information Technology, 2021). Wikis represent a technology that has the potential to facilitate the development of social-constructivist principles; learning groups can easily create, include,

modify, and insert comments in a wiki, and the result is quickly displayed; it is an operative and functional tool in use like blogs or forums (Rodero, 2017).

In Moodle, wikis can be a useful tool for collaborative work. Every student can simultaneously work on the same document and edit it to produce a common class product. Also, groups of students can collaborate on wikis, or each student can create their own wiki and collaborate with teachers and their peers on it (Catalyst, 2021).

A wiki is a simple tool that functions similarly to a word processor; it consists of a basic text editor and a bar that functions similarly to a word processor but with fewer options. Wiki in Moodle allows users to save and retrieve different versions of the documents they are uploading, which comes in handy if they make a mistake or delete something accidentally. It has a friendly atmosphere and encourages collaboration.

Wikis are a type of collaborative technology that enables students to share their knowledge and information, making it simple to organize and structure information. The technical operation is relatively laid-back; they usually share basic word processor editing tools. For this reason, Wikis have become one of the most widely utilized tools in universities and secondary schools. It is also being used in primary schools (Rodero, 2017).

A wiki is a popular, efficient, and easy way for a group to create web content. A wiki typically does not have a central editor or a single individual with final editing authority. Rather, the group creates, modifies, and edits its own content. The effort of numerous learners on a document yields a consensus idea.

To set up and assign a *Wiki* to groups, the user needs to add a Wiki activity to the course with this form of settings: first, choose a *Collaborative wiki* as a Wiki mode. Second, for the Group Mode, select the *Separate Groups* (Suggested to give groups privacy and prevent confusion). Then, regarding the *Assign to grouping*, it is necessary only if the teacher plans to use multiple groups in their course (Information Technology, 2021).

3.4.1.4 Workshop

Workshop in Moodle is a self- and peer-assessment exercise with a variety of alternatives. Students can submit their work using an online test tool or an attachment(s). A learner receives two grades: one for submission and the other for their assignment. Learners can also access their work and peer assessments of other students' work (Dahal et al., 2020).

Creating a Moodle Workshop is one of the most successful methods. It is an activity that emphasizes interaction, collaboration, and application of previously acquired knowledge.

The workshop provides the following opportunities:

- Application of knowledge through constructing a project.
- Collaboration with peers to correct and improve or revise the project.
- Interaction with peers to exchange ideas and concepts
- Project revision and expansion

As can be realized, the workshop includes a variety of components that can assist teachers in guiding students and assisting them in developing and sharing their ideas, making adjustments, and continually interacting, testing, probing, and exploring what they are learning. As a result, students will be able to develop their critical thinking skills, persuasive arguments, and presenting skills (Rice & Nash, 2010).

In addition, with the use of Moodle's Workshop activity, learners' work can be collected, reviewed, and peer-assessed. Students can grade their classmates' work using a multi-criteria assessment form. Through Workshop settings, the teacher can configure both the submission allocation and the assessment form.

Workshops consist of assorted phases, each of which is controlled on settings by the teacher: 1. *Setup* → 2. *Submission* → 3. *Assessment* (by peers) → 4. *Grading evaluation* (Catalyst, 2021).

3.4.1.5 Chat

Students having positive interactions in the forums can encourage students and learn from one another. It may take some time to get answers to some questions, and students may prefer the idea of real-time dialogue or chat in some circumstances.

In fact, students who are accustomed to almost rapid communication via text messages may find the asynchronous communication of a Forum to be exasperatingly slow. They seek short, immediate communication. As a result, for students who prefer text messaging, putting together chat solutions may be an intelligent alternative. Online Chat is simple to set up in Moodle and allows students to connect in real-time (Rice & Nash, 2010).

Chat is a text-based live group discussion (Akshay, Sasikumar, Leena & Manoj, 2009), or we can define it as another tool for collaborative learning. The module's chat activity allows

learners to have a real-time synchronous discussion with course teachers and a group of learners in a Moodle course.

This is a helpful technique to gain a new viewpoint on each other and the topic under discussion - the mode of utilizing a chat room differs from that of asynchronous forums. There are various elements in the chat room for managing and analyzing conversation discussions (Dahal et al., 2020).

While a *Forum* or *Wiki* activity enables learners to contribute anytime they want, *Chat* is best used when multiple learners need to speak at the same time. When a course member logs in to chat, the *Recent Activity block* shows that the chat room is active, inviting and stimulating additional learners to join.

Chats can also be used in conjunction with group modes, allowing teachers to build chat rooms for groups of students to meet online. Additionally, even if students are not all in the chat room at the same time, Moodle preserves an online record of what happens in the chat room. This indicates that whenever a group meets in a chat room, Moodle will maintain a transcript of the meeting. By accessing the chat room and choosing *View prior chat sessions*, all students can access records of chats.

Teachers can set up Chat for groups of students by adding a Chat activity to the course by taking the following steps in the settings: first, for the sake of never deleting the messages (default), it needs to select the *Save past sessions* in the setting. Second, to allow every student to see past sessions, *Everyone can view past sessions* and select **Yes**. For the Group Mode, choose *Separate Groups*, which is Suggested to give groups privacy (Information Technology, 2021).

3.4.2 Google Apps

As a cloud computing application, Google Apps (GA) has become quite popular in the field of education and can be utilized efficiently for communication between academic staff and their students. As an online tool, GA is simple to use, dependable, beneficial, effective and productive for improving communication in academic institutions. As a result, it can be considered one of the instructional aids. Furthermore, GA services are a cloud computing technology that allows users to access them anywhere and anytime via the internet (Owayid & Uden, 2014).

GA is a sophisticated tool that works for students no matter where they are when they are, or what device they are using. Thousands of schools and institutions around the world

utilize GA to effectively employ collaboration technologies for students and faculty with the primary goal of improving teaching and learning. GA tools, in particular, allow users to collaborate on documents, presentations, and projects in the cloud digitally. GA is used to create course websites to supplement traditional classroom instruction, aiming to provide students with coursework (Awuah, 2015).

GA is a collection of free email and collaboration tools designed to help K-12, University Education, large school districts, university consortiums, and state governments develop high-level legal agreements. The most valuable links are <http://www.youtube.com/GoogleDocsCommunity>, <http://www.google.com/newproducts/>, http://sites.google.com/site/gtaresources/files/Crib_Docs.pdf?attredirects=0 and. The purpose of these tools for instructors is to create a learning environment that encourages group work as a requirement for each child's development of self-regulation skills. Imitation, cooperation, confrontation, discussions, and sharing are all aspects of a person's development and socialization. These tools play a critical role in their cognitive, emotional, and psychomotor activities (Railean, 2012).

GA comprises Mail, Docs, Drive, Calendar, Sheets and Sites, which provide helpful and appealing solutions for clients looking for free or low-cost, simple-to-use, and flexible ways to manage electronic communication services and resources. GA provides academic personnel with collaboration tools that allow academic staff to share documents at any time and from anywhere (Owayid, & Uden, 2014).

In this section, the researcher shed light on some of the GA tools teachers can use for CL in their own class teaching.

3.4.2.1 Google Docs

Collaboration is an effective and authentic technique for engaging, improving, and directing student learning. Google Docs is built into GA for Education, allowing for collaborative activities and projects inside and outside the classroom. Web-based word processing, spreadsheet, and presentation technologies allow students to collaborate more effectively on projects. A teacher's classroom can become more productive, engaging, and effective if he/she learns how to use the resources offered through Google Docs. Google Docs is a free web-based suite of document-creation tools that allow multiple individuals to contribute, edit, and collaborate on the same document. Multiple users can simultaneously produce and share documents, presentations, spreadsheets, forms, drawings, and collections (folders). Users can also download documents, work on them offline, and then re-upload them

to their accounts. Each resource can be used in the classroom to achieve a particular set of goals (Hermanson, 2012).

Both Google Docs and Drive offer web-based word processing, spreadsheet, and presentation software. It is a suite of web-based tools and file storage that runs in a web browser and does not require users to purchase or install the software (Owayid & Uden, 2014). Google Docs promotes effective collaboration by giving group members a "mechanism" that allows them to "work within a single user area" (Perron & Sellers, 2011, p. 490 as quoted in Andrew, 2019, p. 1270), which may explain why it was found to be useful for group work in out-of-class collaborative writing activities. Additionally, in Google Docs, in line with the Peacock & Grande study (2016), medical learners in a first-year pathology course found the collaborative capabilities of Google's version of PowerPoint (Google Slides) helpful in preparing and creating presentations. According to several studies, students preferred Google Docs over Microsoft Word for collaborating to revise and expand a pre-written assignment. Students developing collaborative mind maps on Google Docs used peer collaboration to discover science topics more than students collaborating on paper (Andrew, 2019).

Google Docs makes it simple for several editors to collaborate simultaneously and make changes to the same document in actual time. Geographic location, platform reliance, and compatibility difficulties are no longer stumbling blocks. Furthermore, users can also utilize the chat tool to have discussions, and the document's owner can provide access permissions to users with various roles, such as viewers or collaborators. GA tools are powerful and straightforward to use, and they assist administrators in managing items like users, documents, and services, as well as keeping track of usage and data via dashboards (Awuah, 2015).

Google Docs is more dynamic since sharing online documents gives teachers and peers a privileged real-time perspective of innovation and production. Documents can be created on Google apps and saved in the cloud. Students with a Google account can use Google Drive to create documents, save them to the cloud, and access them from anywhere. This can benefit education by increasing productivity and collaboration and help students prepare for the workforce by teaching them how to use cloud-based applications (Andrew, 2019).

There is more than one sharing option to share a document with colleagues or students. The first option of sharing the documents is the same process that can be used for sharing Google Sheets.

1. On the upper right, click the **Share** icon.
2. Add the email addresses of the colleagues/students you want to access the document.

3. Select whether people can view, edit, or comment on the document by clicking the **pencil icon**.
4. Alternatively, you may utilize the Get a shareable link option and manually transmit the link. You can group messages or email the link to your team after selecting the viewing and editing rights.
5. When you're finished, click **Done** (See Figure 8) (Writtenhouse, 2020, ¶ 14).

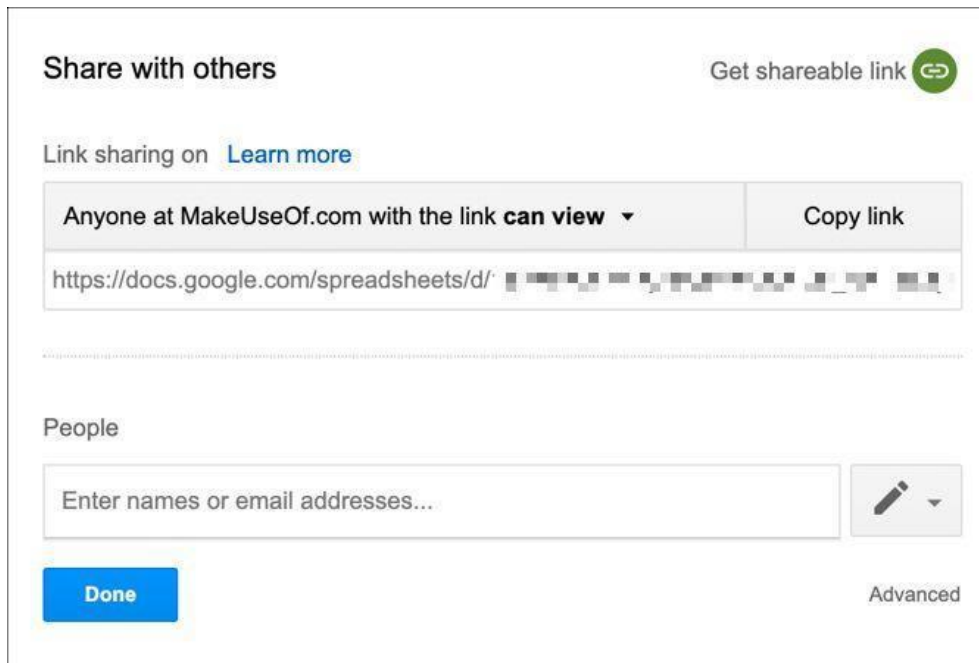


Figure 8: Sharing Google Document (derived from Writtenhouse, 2020, ¶ 14).

Another option that can be used for sharing Google Docs or Google Sheets is some advanced settings.

1. On the upper right, click the **Share** icon.
2. Click **Advanced** in the popup window.
3. The link to share, those who have access, and the option to invite new individuals may all be found here.
4. You can check the boxes for those additional options under **Owner settings**. Thus, you can restrict editors from modifying access or adding others, and disable options for commenters and viewers to download, print, or copy it (See Figure 9).

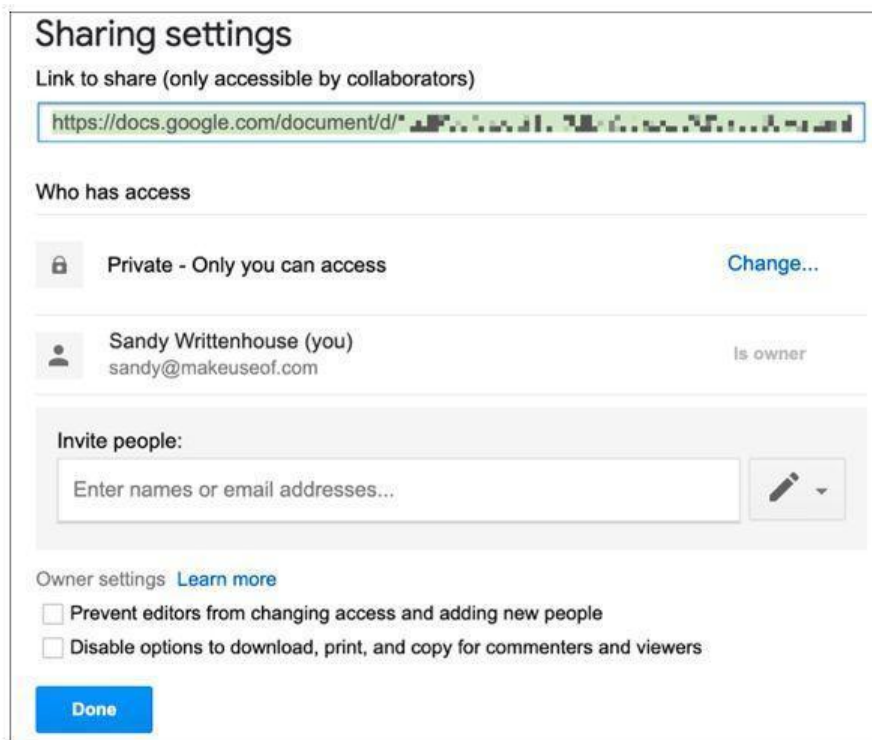


Figure 9: Sharing Google Documents or Google Sheets (derived from Writtenhouse, 2020, ¶ 19-20).

As you read the document, pay attention to the colourful, flag-like icons with students' names. They inform you of who is in charge of making adjustments (Writtenhouse, 2020).

3.4.2.2 Google Slides

Group work and collaboration are fundamental methods of learning in most educational sectors. Group projects benefit from exchanging varied ideas. Plus, group work can enhance learners' morale as group members interact and learn to work with each other.

Creating online presentations with Google Slides is another collaborative tool that can be conducted during the teaching and learning processes. Students, through Google slides, can work together on preparing and creating the same presentation at the same time. Real-time presentation sharing in Google Slides makes collaboration and group work simple. In addition, the teacher can also restrict who has access to the online presentation and what changes they can make (Spencer, 2018).

This collaborative tool, like Google Docs and Sheets, enables real-time editing by anyone with permission. Simply use the **Share** button in the window's upper right to follow the now-familiar process for granting privileges (See Figure 10) (Writtenhouse, 2020).

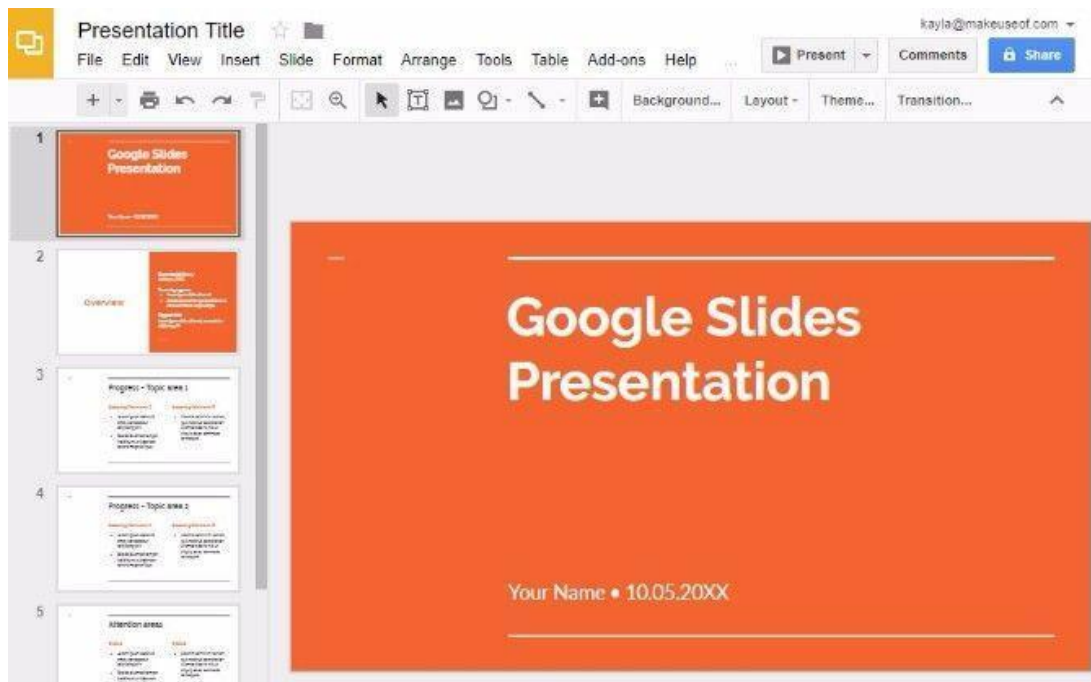


Figure 10: Sharing Google Slides (derived from Writtenhouse, 2020, ¶ 22).

3.4.2.3 Google Hangout/Chat

Google Hangouts/Chat is a social network that includes a video chat and web conference tool. Anyone can join a Hangouts session with a Google account without registering a separate account. Anyone with a Google account will have no trouble joining a Hangouts session. Even if someone do not have a Google account, he/she can establish one for free in minutes.

Hangouts are distinguished from other free video chat tools by their ability to perform more than just video chat. Up to ten participants can use video chat simultaneously in a single session. (Skype, for example, charges a price for up to 10 people as part of its premium service.) The participant who is speaking is displayed on the main video screen, which will change when the next participant begins speaking (or starts speaking louder than anyone else).

Within the video chat interface, Hangouts provides several collaborative capabilities. All users can play a YouTube video on the main presentation screen, share a presenter's screen or desktop, and even amend a Google Drive document that has been shared with them (formerly Google Docs). Hangouts is a credible presentation tool that rivals free or low-cost web conferencing services and is a superior video presentation tool than what is available in Learning Management Systems (i.e., Blackboard, Moodle, etc.) due to its ability to share desktops (Bolton, 2013).

To start a conversation session, it needs to click on the + sign. Then, add group members by name, email address, or phone number. Finally, it can be decided to communicate via text

message, phone call, or video call.

By clicking the person icon and then the **Invite People** icon at the top, you can invite more people to join. After that, repeat the procedure you used to create the chat (See Figure 11) (Writtenhouse, 2020).

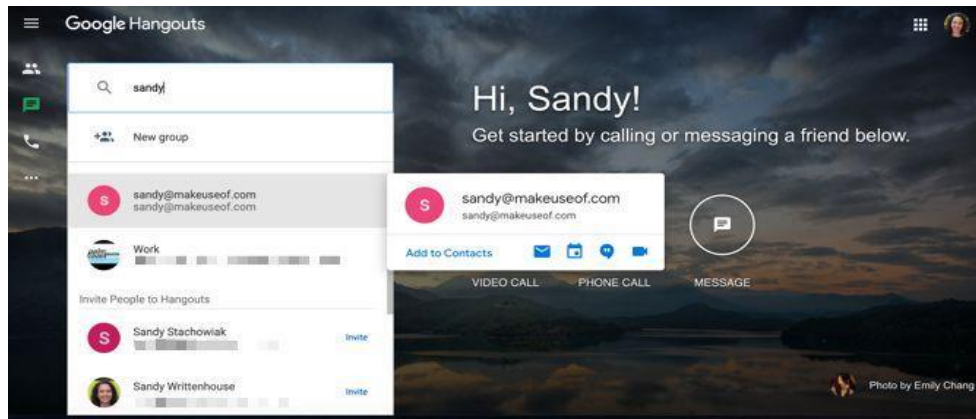


Figure 11: Google Hangouts chat (derived from Writtenhouse, 2020, ¶ 22).

3.4.2.4 Google Meet

Google Meet and Hangouts are similar in that they allow users to make video calls. Google Meet is a paid service intended for professionals; however, it is temporarily free owing to the COVID-19 epidemic (Writtenhouse, 2020). Using live video to engage with the students is a simple and quick approach. It can be used for instruction, group discussions, or to allow students to see each other's faces (ED TECH, 2020).

Google Meet is an interactive multimedia platform for online learning. It assists educators in employing the lecture method in indirect learning activities. Students are supposed to benefit from interactive learning in terms of constructing knowledge and learning outcomes (Setyawan et al., 2020).

Google Meet can accommodate up to 250 participants per call for G Suite users (Google's packaged solution for organizations of all types) in education, business, etc., whereas regular Google accounts can have up to 100. Users can also try live streaming and recording features (Writtenhouse, 2020).

Google Meet is an open-source Google product that is simple to set up. According to studies, with the new update from Google Hangouts to Google Meet, it now competes with Skype and Zoom and is one of the top solutions for group video conferencing. Moreover, it has been well documented in literature reviews that millions of Google Meet users, including learners and teachers, are already familiar with the application and its functionality. So, there

would not be necessary to provide learners and teachers with extensive tutorials on how to set it up, as is the case with Zoom, Microsoft Teams, and other applications (Ironsi, 2021).

The use of Google Meet would necessitate collaboration between students and teachers in designing class timetables that would be convenient to everyone because its efficiency is dependent on both the teachers and the learners. Google Meet allows users to set apart their relationships to safeguard privacy, especially regarding the type and amount of information shared among learners. Previous and recent theories propose that applying real-time learning will close learning gaps, boosting social interactions and eliminating social distances between students (Ironsi, 2021).

It is easy to start or join a meeting using Google Meet. Go to *Google apps*, select *the Meet* icon, *Start a meeting*, or *Enter the meeting code*, and you are ready to go (see Figure 12) (Writtenhouse, 2020).

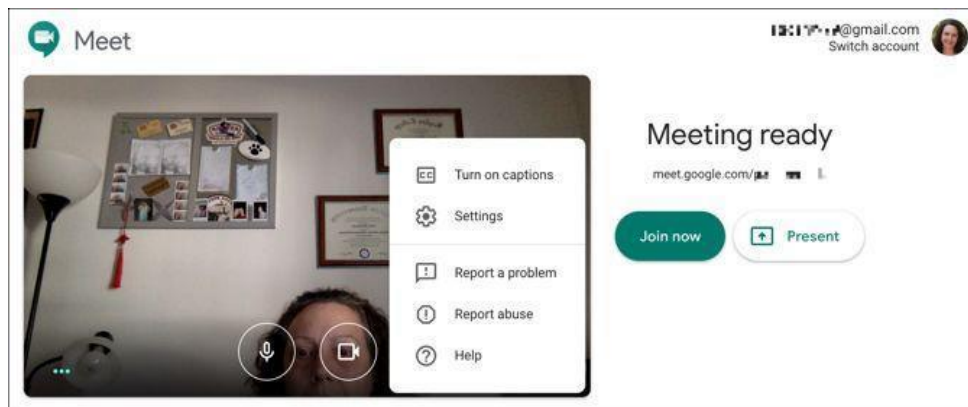


Figure 12: Google Meet meeting (derived from Writtenhouse, 2020, ¶ 31)

3.4.3 Zoom

Zoom is a web-based technology that provides video conferencing, video and audio calling, instant and persistent messaging, and file sharing between individuals and groups (Sayem et al., 2017). It allows interactions like those found in traditional classrooms. A free version is accessible, but video sessions are limited to 40 minutes. The corporation has waived the time limit on free basic accounts for primary and secondary schools due to the COVID-19 outbreak. (Alfadda & Mehdi, 2021).

This software program can be installed on a computer or a mobile device. As part of its regular free license, Zoom.us provides comprehensive collaboration and engagement options, including connecting by VoIP or traditional phone when the internet is unavailable. Zoom.us is a leader in corporate video communication, offering a secure and dependable cloud platform

for video and audio conferencing, chat, and webinars. Zoom is a video and web conferencing tool, whilst Zoom webinars are a unique feature that allows presenters to broadcast to up to 500 people, which is exclusively available to premium subscribers (Adenegan & Abiodun, 2018).

Within the Zoom environment, students can engage in several educational activities. For example, communication-related activities like greeting people, classroom lectures, question and answer sessions, and group discussions in breakout rooms. Activities related to materials include sharing slides or screens with learners or teachers, downloading homework assignments, and uploading responses to questions. Activities related to study comprise answering polling questions, delivering courses using slides or the whiteboard, classroom practice utilizing the whiteboard or chatbox, and group work in breakout rooms. Individual meetings between students and teachers can also be arranged to discuss the student's work, which can be recorded for later review (Alfadda & Mehdi, 2021).

Zoom is the industry leader in modern workplace video communications, offering a simple and dependable cloud platform for video and audio conferencing, collaboration, chat, and webinars on mobile devices, PCs, phones, and room systems. Since Zoom is a cloud-based service, it provides Meetings and webinars that allow for document sharing and video conferencing. It enables teachers to bring their students together in a frictionless atmosphere to accomplish more (Guzacheva, 2020).

There are a number of benefits to using Zoom to teach in an online context. According to Rahayu's research study (2020), in a survey, more than 60% of university students claimed they could readily communicate through writing or speaking using Zoom. Students could also use the shared whiteboard to answer questions, grasp the lessons, and work successfully with their peers. Like other forms of synchronous online communication, Zoom can help students feel less socially isolated and build a sense of community (Alfadda & Mehdi, 2021).

Zoom has another beneficial feature that provides a chance for "meeting." The Zoom Cloud Meeting can be utilized for both teaching and learning purposes. The teacher can use the "share material or share screen" button as the host. The teacher can opt to use the white screen board to deliver the topic and write while also discussing the concept being taught. Alternatively, the topical content can be created ahead of the class in a PDF, Microsoft, or PowerPoint that can be screen shared with the students in real time. As a result, it should not be assumed that Zoom Cloud Meeting is just focused on meetings. There is Zoom education, which helps students achieve higher results (Adenegan & Abiodun, 2018).

According to Guzacheva's (2020) study, Zoom technology is a wonderful tool for collaboration. Students can practice using the chatbox to communicate with each other, their teacher, or the entire class. Students can access everyone's camera and listen in on everyone's conversations. Teachers can use the breakout rooms to divide students into pairs, threes, or groups they like. It is an excellent method to encourage pair or group work while allowing students to work individually (Guzacheva, 2020).

The following some of the uses of the Zoom software platform are presented for collaborative learning activities:

3.4.3.1 Online Collaboration with “Share Screen”:

The Share Screen feature makes it simple to share the contents of the user's screen, mobile device, or other application, such as a web browser or PowerPoint, with others. If desired, teachers or their students can annotate this screen, and teachers can even share a blank whiteboard with the option to email participants a PDF copy before moving on. This feature can be handy when dealing with questions that need web resources that can be visually referenced. It can also facilitate distant collaboration on a project, such as a group paper or presentation on Google Drive, by allowing one member to share their screen while the work is open (Ellsworth, 2018).

In addition, Zoom's screen-sharing feature allows English language teachers to explore and analyze the four skills through dynamic interactions with learners. It encourages teachers to annotate their shared screen in addition to screen sharing, making the teaching and learning session more interactive. Teachers can record lessons and watch them again to evaluate the strengths and weak points of the learner, and learners can self-assess their skills by watching the recorded sessions. If the teacher enables the recording feature, they can record their courses to the Cloud or locally, and students can also record and turn the recording on and off as many times as they want during a lesson. Students can watch the recorded lessons to see how far they have progressed. Furthermore, English teachers can evaluate students' progress by displaying the video lesson to another teacher they trust and soliciting constructive feedback (Guzacheva, 2020).

Furthermore, teachers can use Zoom to deliver their course content in various ways. They can use Zoom's screen sharing to help students strengthen their intercultural skills by sharing engaging materials like videos, articles, and presentations. They can motivate students

to use active inquiry to analyze and evaluate their learning. They could also urge students to create and share a video reflection on their lessons (Guzacheva, 2020).

To share screens, teachers need to follow the following steps:

To begin, *create an account* with Zoom and *download* the software → Start a *Zoom meeting* after that → Along the bottom of your meeting, the user can see a *black bar* with various icons running. To share your screen, click the green "*Share Screen*" button (See Figure 13) → Then the user can select what he/she wants to share. The user has many options. The most common option is to share the entire screen, but he/she can also share individual windows or from a whiteboard, tablet, or phone (Pieper, 2021).

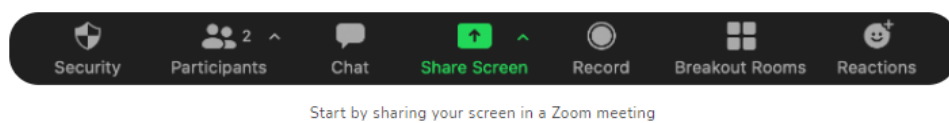


Figure 13. Zoom meeting sharing screen (Pieper, 2021, ¶ 13).

3.4.3.2 Online Collaboration with “Breakout Groups”

A technique to engage students in a seminar format online is dividing them into small groups to go further into a specific discussion topic, question, or problem. Within these discussions, students can connect with their peers in an online setting that might feel isolating and remote at times. The breakout groups feature in Zoom can help reduce feelings of isolation and disconnectedness in an online learning session, with students interacting more deeply with each other and with the faculty member or facilitator, who can switch between groups before bringing everyone back together (Ellsworth 2018).

The breakout rooms feature enables online teachers to arrange intimate, interactive activities that help their students form lasting connections. In the breakout rooms, students can communicate with one another in a small discussion group or work on group projects collaboratively. Zoom allows the virtual facilitator to easily go between breakout rooms to assist students with group discussions and check in on how they are doing while working together, just like they would in a real classroom (Pearce, 2021).

To set up the breakout room, teachers need to follow the following steps:

To begin, you must first enable *Breakout Rooms* on your *Zoom account*. For this purpose, on the *Zoom.us* website, log in to your account → Click "*My Account*" in the top-right corner to access your account → under the "Personal" header in the left sidebar, click "*Settings*" → Under the Meetings tab, scroll down to the "*In Meeting*

(Advanced)" category → Click the switch to enable **Breakout rooms** → It is also recommended to enable pre-schedule breakout rooms through activating or selecting the checkbox underneath the switch toggle (it enables the user to manually assign students to specific breakout rooms before the meeting starts).

Once this advanced feature has been activated in your account settings by following the guidelines mentioned above, you can establish breakout rooms when you pick "New Meeting" or "Schedule" in your Zoom account.

When your Zoom meeting starts, you will see a new "Breakout Rooms" icon in the bottom right corner of the toolbar that was not there before (See Figure 14).

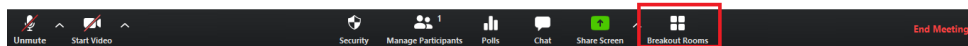


Figure 14. Breakout Room icon (Victoria University, 2021, ¶ 13).

When you click the "Breakout Rooms" icon, you will be given the option of either allowing Zoom to automatically sort your participants into the number of rooms you specify or manually sorting each room (See Figure 15) (Pearce, 2021, ¶ 5-8).

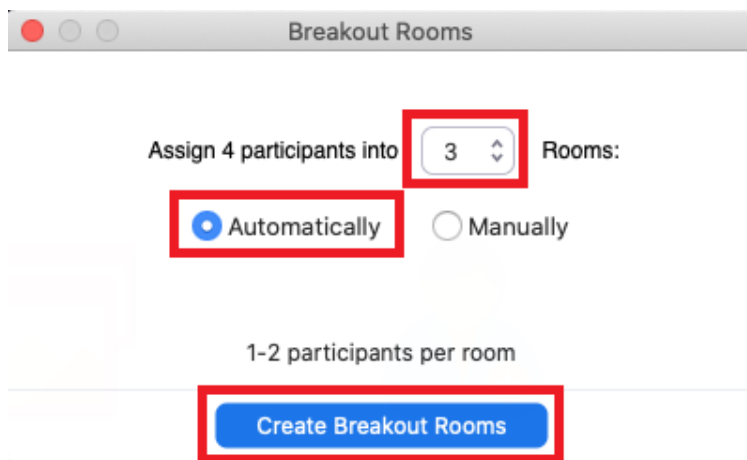


Figure 15. Creating Breakout Rooms (Victoria University, 2021, ¶ 14).

After creating the rooms, select **Open All Rooms** to invite your students to join (See Figure 16).

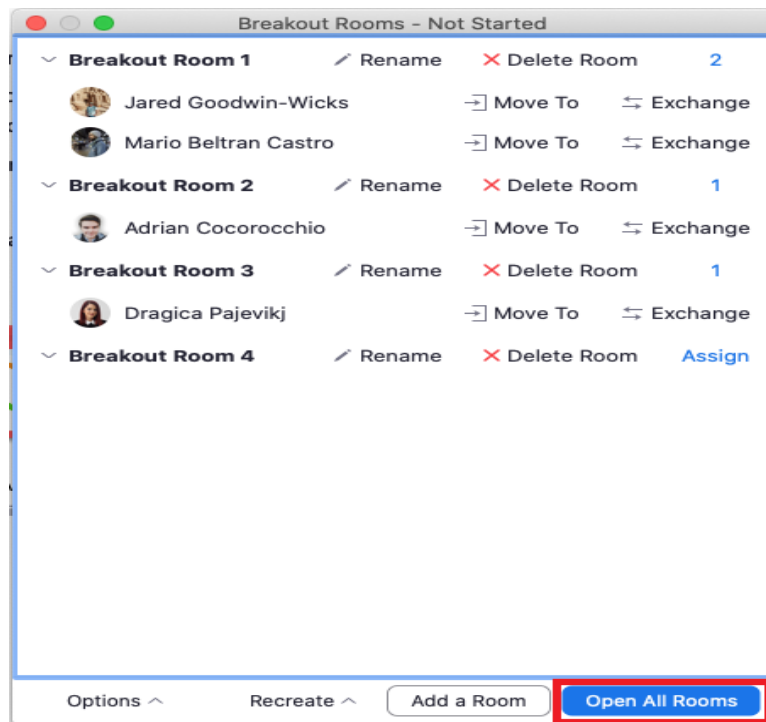


Figure 16. Inviting students to join Break Rooms (Victoria University, 2021, ¶ 15).

You will now be able to join any of the rooms that have been created. You may also send a message to everyone through pick *Broadcast a message to all* or just one group (see Figure 17).

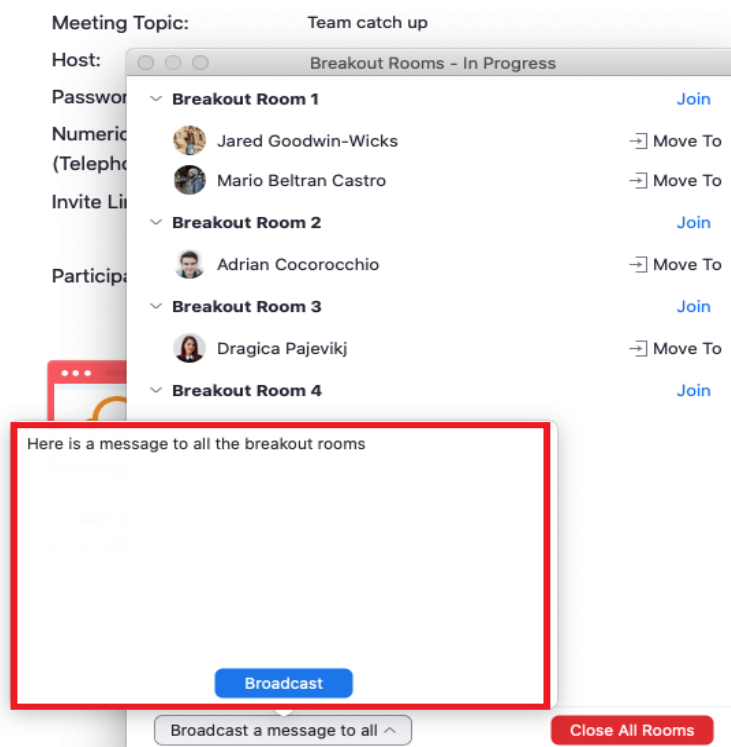


Figure 17. Messaging to students through Broadcast in Breakout Rooms (Victoria University, 2021, ¶ 16).

When the students are finished with their activity, click **Close All Rooms** to return to the main room (see Figure 18)

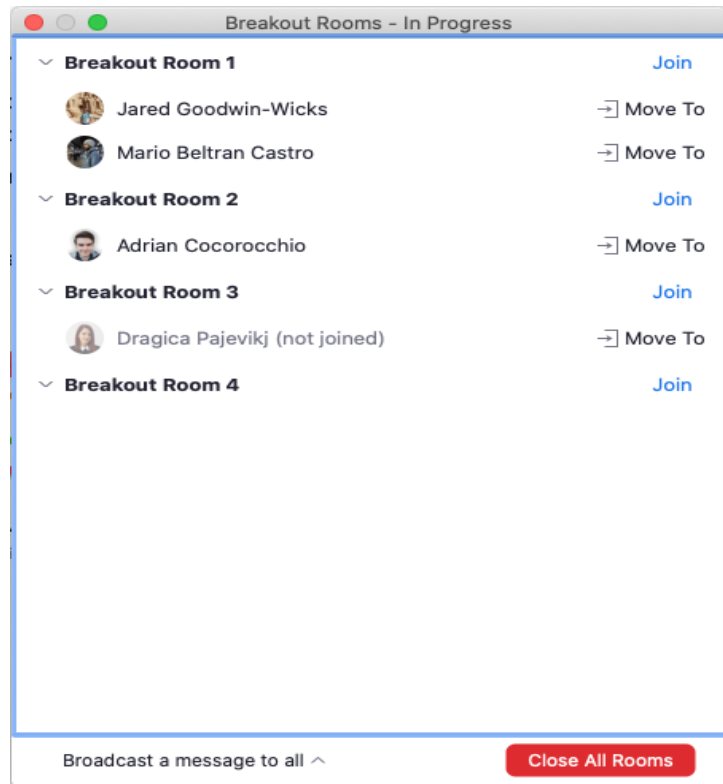


Figure 18. Closing all Breakout Rooms (Victoria University, 2021, ¶ 17).

When you choose **Close All Rooms**, attendees will have 60 seconds (or less if you choose) to leave the breakout room and join the main session before the breakout rooms are closed (see Figure 19).

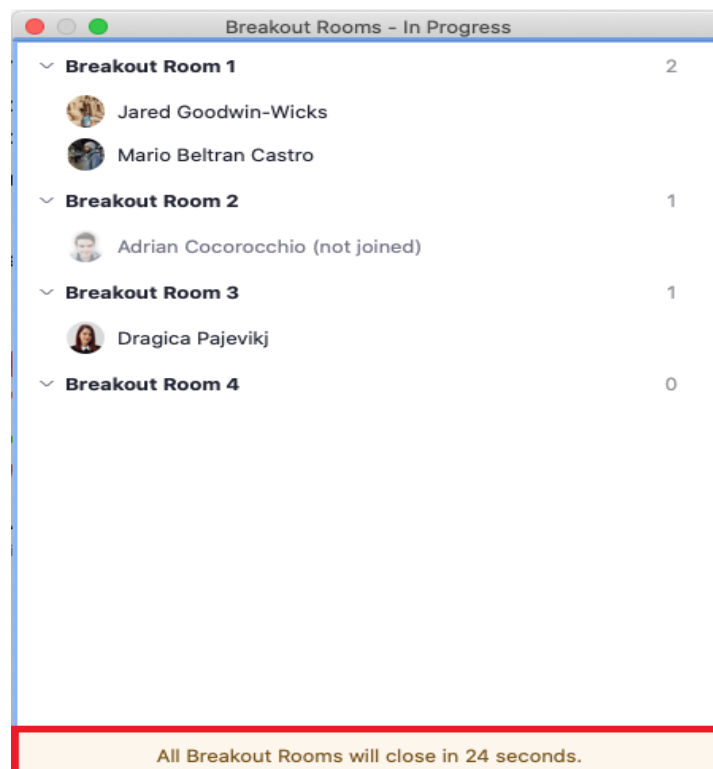


Figure 19. Closing all Breakout Rooms' attendees in 60 seconds or less (Victoria University, 2021, ¶ 18).

3.5 Barriers of integrating ICT in CL throughout the teaching and learning processes

The method of integrating ICT into daily education is highly complex. The opportunities dispensed by ICT for supporting teaching and learning are not problem-free. The virtually unlimited opportunities for access to information in an educational context can lead to an actual crisis of information overload if teachers need more skills to filter information for relevance or are incapable of setting up a coherent organizing principle. Both students and teachers may need more skills to access, process, and use data. Even so, there are a variety of challenges that serve as roadblocks to teachers that suppress them from incorporating ICT into the classroom (Salehi & Salehi, 2012). A challenge is "any condition that makes it difficult to make progress or to achieve an objective" (WordNet, 1997, as quoted in Ghavifekr et al., 2016, p. 41).

In the previous sections, many benefits of using ICTs in education have been discussed; however, some challenges and barriers of using ICTs in education impede their success in educational settings (Kareem, 2017). Throughout the literature, educators have practised several categories to classify the teachers' ICT obstacles in the classroom. To begin with, *extrinsic* and *intrinsic* barriers are the two main types of barriers identified by some researchers. *Extrinsic* barriers as first-order, according to Ertmer, include things like access, time, support, resources and training, while *intrinsic* barriers as second-order include things like attitudes, beliefs, practices and resistance. Al-Alwani characterizes *extrinsic* barriers as those related to institutions rather than people, while *intrinsic* barriers are related to teachers, managers, and individuals. Other researchers divided the barriers into two categories: at the *teacher* and *school-levels*, to Becta individual (*teacher-level*) barriers, such as lack of confidence, lack of time, and resistance to change, and institutional (*school-level*) barriers, such as lack of efficient training in solving technical pitfalls and lack of access to resources (Salehi & Salehi, 2012).

Furthermore, Balanskat et al. classified challenges into *micro-level* barriers and *meso-level* barriers. *micro-level* barriers, like teachers' attitudes and approaches to ICT, and *meso-level* barriers, like those referred to the institutional context. They also introduced a third category, *macro-level* obstacles, which include those relevant to the educational system or framework. Another group of researchers defines barriers as those related to two conditions: *material* and *non-material*. The *material* conditions, according to Pelgrum, belong to a lack of computers or copies of software. Teachers lack ICT knowledge and skills, the

challenge of incorporating ICT into teaching, and inadequate teacher time are examples of *non-material* obstacles (Salehi & Salehi, 2012).

Livingstone (2012) reports that integrating ICT into the educational system would present a significant challenge for educational sectors in terms of changing educational infrastructure, teacher training, curriculum structures and resources, instructional procedures, and evaluation modes; these must be redesigned at all levels. This major shift will take a long time and money to implement. Other issues, on the other hand, may be dealt with separately. The following are some of the prevalent ICT challenges described in the literature and may exist in many areas worldwide (Kareem, 2017).

3.5.1 Teacher-level Barriers

3.5.1.1 Lack of Access to ICT Devices

Access to technology is one of the most significant obstacles faced by many areas of the world regarding education. According to Fu (2013), the affordability and usability of ICT equipment are major obstacles to overcome. It is easier to deal with it when there is enough provision. Billy (2015) shares this viewpoint and notes that in the United States of America, 30% of households do not have access to technology, which affects their children's academic success (Kareem, 2017). In Sicilia's study (2005), teachers complained about how hard it was always to have access to computers. The author explained, "computers had to be booked in advance, and the teachers would forget to do so, or they could not book them for several periods in a row when they wanted to work on several projects with the students" (p. 50 as quoted in Ghavifekr, et al., 2016, p. 42). In other words, since most ICT resources were shared with other teachers, a teacher would not have access to them (Ghavifekr et al., 2016).

In the United States, the most significant obstacles to high school teachers' use of ICT were

- an insufficient number of computers,
- a lack of free time for instruction, and
- a lack of computing time in the classroom for students.

Teachers in larger and city schools were more likely to report a shortage of computers as an obstacle, while teachers in schools with a significant minority student population were more likely to report obsolete, defective computers as a barrier (Salehi & Salehi, 2012). According to Becta (2004), ICT services are only sometimes inaccessible due to a lack of hardware, software, or other ICT materials inside the school. It may be due to various reasons,

including inadequate resource organization, low-quality hardware, inappropriate software, or teachers' lack of personal access (Ghavifekr et al., 2016).

In a research study in the United Kingdom, Jones (2004) indicated that a dearth of personal confidence and deficient access to ICT services were the main obstacles for most surveyed teachers (Salehi & Salehi, 2012). Similarly, Korte and Hüsing (2007) discovered that certain technological obstacles exist in European schools, such as the lack of broadband connectivity. They found that one-third of European schools still lack broadband Internet access. Pelgrum (2001) investigated the key barriers to ICT implementation in schools from the perspective of practitioners from 26 countries. He reached the point that four of the top ten obstacles were called ICT accessibility. Inadequate computer units, peripherals, numbers of copies of the software, and immediate Internet access were among these roadblocks (Ghavifekr et al., 2016). Besides, Toprakci (2006) discovered that a lack of computers, old or sluggish ICT systems, and a shortage of educational software in Turkish schools were all obstacles to effective ICT implementation. Further, AlAlwani (2005) explored that in Saudi schools, having no access to the Internet during the school day and a lack of hardware hampered technology integration. According to a recent study of Syrian schools, one of the most significant barriers of technology integration in the classroom was a lack of computer resources (Albirini, 2006, as cited in Ghavifekr et al., 2016).

In agreement with Empirica's (2006) European analysis, the most significant obstacle to using ICT in teaching and learning is a lack of access (Ghavifekr et al., 2016). Gyamfi and Gyaase (2015) argue that providing Internet connectivity to students outside the university or school is also a barrier. Concerning this issue, Albugami and Ahmed (2015) discuss the government's duty to shoulder the solution to this issue. The government occasionally supports the integration of ICTs into education, but it needs to be taken more seriously. To illustrate, Albugami and Ahmed discuss the Saudi Arabian government's efforts to integrate ICTs into schools, but they lack sufficient supply and opportunities. This may not be limited to Saudi Arabia, as many other areas, such as Iraqi Kurdistan and Iraq in general, are affected (Kareem, 2017).

3.5.1.2 Lack of Teachers' Competence

Another difficulty that directly belonged to teacher confidence is teachers' competence in incorporating ICT into pedagogical practice (Becta, 2004). Recent studies declare that the severity of this barrier varies by region. As an illustration, in developing countries, teachers' lack of technological competence is a significant obstacle to their acceptance and adoption of

ICT (Pelgrum, 2001; Al-Oteawi, 2002). Similarly, teachers' lack of technological competence has been cited as a major impediment in Syria (Albirini, 2006). In Saudi Arabia, a lack of ICT skills is a primary barrier to integrating technology into science education (AlAlwani, 2005; Almohaissin, 2006).

Furthermore, a study on ICT use in European schools was published by Empirica (2006). The report's data came from a survey of Head Teachers and Classroom Teachers conducted in 27 European countries. The results indicate that teachers who do not deploy computers in the classroom believe that a "lack of skills" is a barrier to practising ICT in the classroom. Pelgrum (2001), in a global study of nationally representative samples of schools from 26 countries, revealed that teachers' lack of knowledge and skills is a significant barrier to using ICT in primary and secondary schools. As stated in the findings of a study conducted by Balanskat et al. (2006), "in Denmark ... many teachers still chose not to use ICT and media in teaching situations because of their lack of ICT skills rather than for pedagogical/didactics reasons" while "in the Netherlands ... teachers' ICT knowledge and skills are not regarded any more as the main barrier to ICT use" (p. 50). As a result, one of the main roadblocks to integrating technology into education could be a lack of teacher competency. It may also be one of the reasons contributing to resistance to change (Ghavifekr et al., 2016).

Some teachers report a lack of knowledge of using computers in language instruction as the primary reason for not using computers. In research concerning the viewpoints of instructional materials, classroom teachers typically needed to gain more knowledge of the technology (Odabasi & Namlu, 1997, cited in Asan, 2003). This is partially because many currently employed teachers earned their teaching certificates before the advent of computer education. Teachers felt a need for computer training, which they still need to receive in most cases (Azarfam & Jabbari, 2012). For this purpose, there is a need for an appropriate and thorough constant ICT teacher training program so that teachers become familiar with the variety of uses and potential benefits of ICT, which will increase their teaching quality as well (Mumtaz, 2002, as cited in Aziz, et al., 2021).

3.5.1.3 Lack of Teacher Confidence

According to many studies, a lack of confidence prevents teachers from using ICT in their classrooms. To Dawes (2012), this is a contextual element that can serve as a barrier. According to Becta (2004), most research suggests that a lack of confidence is a significant obstacle to teachers' use of ICT in the classroom. The question of lack of

confidence was the topic that drew the most responses from those who took part in Becta's survey of practitioners (2004) (Bingimlas, 2009).

Some teachers are hesitant to use computers in front of a class since they have no experience with technology, according to one of the teachers:

If you're a teacher, you don't want to step into a classroom with something you don't know how it works, because you look like an idiot. It's already stressful to use something in a classroom, but if you don't know [how to use it], that's adding more stress (Azarfam & Jabbari, 2012, p. 453).

In accordance with Swain (1999), this dearth of confidence in their computer skills implies that these teachers do not see their students as a resource. They seemed to prefer the traditional position of the instructor as an expert, which may indicate that their discomfort stemmed from the idea of relinquishing their expert role rather than a lack of computer skills, as they said (Azarfam & Jabbari, 2012).

Additionally, the reasons for teachers' lack of confidence in the use of ICT have been explored in some studies. Beggs (2000), for example, claimed that teachers' "fear of failure" led to a lack of confidence. Balanskat et al. (2006), on the other hand, discovered that teachers' limited ICT awareness causes them to be nervous about using ICT in the classroom and, therefore, need more confidence in using it in their teaching. Similarly, Becta (2004) stated that: "many teachers who do not consider themselves to be well skilled in using ICT feel anxious about using it in front of a class of children who perhaps know more than they do" (p. 7). Many teachers who described their lack of confidence as an obstacle in Becta's survey (2004) said they were terrified of entering the classroom with minimal information in the field of ICT and their students knowing it. It was argued that a lack of confidence and familiarity with technology affect teachers' encouragement to use ICT in the classroom (Cox, Preston, and Cox, 1999b; Osborne & Hennessy, 2003; Balanskat et al., 2006).

On the flip side, teachers who confidently practice technology in their classes appreciate the value of ICT. According to Cox, Preston, and Cox (1999a), teachers who are confident in their use of ICT recognize that technologies are beneficial in their teaching and personal work and that they need to expand their use in the future (Bingimlas, 2009).

3.5.1.4 Resistance to Change & Negative Attitudes

Teachers' attitudes and an innate aversion to change were found to be a major obstacle in many studies of the obstacles to ICT integration in education (Cox et al., 1999a; Watson, 1999; Earle, 2002; Becta, 2004; Gomes, 2005; Schoepp, 2005). Based on his/her study of the questionnaires, Gomes (2005) discovered that science teachers' resistance to change regarding

the use of new techniques is a barrier to ICT incorporation in science teaching. Becta (2004) concluded that resistance to change is a primary impediment to teachers' use of emerging technology in the classroom (Bingimlas, 2009).

Watson (1999), an Australian academic, stated that incorporating emerging technology into educational environments necessitates change, and different teachers will deal with this change differently. He believes that taking into account different teachers' attitudes toward change is vital because teachers' beliefs affect what they do in the classroom. According to Becta (2004), one of the most important aspects of teachers' attitudes toward using technology is their perception of how it can improve their teaching and students' learning (Bingimlas, 2009).

Mirriahi et al. (2015) discuss the teaching staff's dearth of digital or IT literacy. They argue that teachers and other teaching personnel should value ICTs and become literate to provide better ICT-assisted instruction. If teachers have a high level of IT proficiency or are real ICT literates, they will not have negative attitudes toward it. In consonance with Fu (2013) and Albugami and Ahmed (2015), negative attitudes, values, and actions toward ICT tools are the most severe obstacles that impede educational achievement. It has been observed that successful technology implementation requires a teacher's attitude, preparation, and proper training (Kareem, 2017). The quality of ICT incorporation into the educational setting's system, as well as the success or failure of its use as a learning and teaching tool, is determined by teachers' acceptance, attitudes, and intention to use it. As a result, teachers must have a good intention to use ICT in their everyday activities; otherwise, the ICT integration process would be ineffective and unpromising (Alshmrany & Wilkinson 2017 as cited in Aziz et al., 2021).

Even though Schoepp (2005) found that there was more than enough technology available, teachers did not feel they were being underpinned, directed, or rewarded for incorporating technology into their classrooms. According to Empirica (2006), teachers who do not use modern technologies in the classroom, such as computers, believe that ICT has no advantages or unclear advantages (Bingimlas, 2009).

Besides, Jones' research (2004) mentioned several more intrinsic reasons to the teachers, such as resistance to change and a lack of knowledge of the advantages of ICTs for learning. Teachers in New Zealand consistently identified a lack of time for professional development to learn about new technology and a lack of time to explore technologies such as the internet and social networking services as major barriers of using ICT in the classroom. Teachers also mentioned other reasons, such as ICTs needing to be deemed relevant enough to be a priority,

satisfaction with current approaches, and a lack of faith in integrating ICTs into the curriculum (Salehi & Salehi, 2012).

Resistance to change is not an obstacle itself; rather, it appears to be a sign that something is wrong. To put it another way, there are reasons why people resist change. According to Earle (2002), the transition from a current level to a desired level of success is accelerated by driving (encouraging) forces such as the power of new improvement, rapid availability, innovation, Internet access, or ease of communication, while resisting (discouraging) forces such as a lack of technical support, teacher experience, or time for preparation delay it. Conforming to Cox et al. (1999a), study teachers are unlikely to use new technology in their teaching if they see no reason to improve their professional practice. They demonstrated that teachers who oppose change are not denying the need for change; instead, they need more preparation to embrace the changes and are given inadequate long-term opportunities to make sense of new technology for themselves (Bingimlas, 2009).

Obviously, this barrier does not exist in every culture. Korte and Hüsing (2007) note that only a tiny percentage of European teachers are fundamentally opposed to using ICT in the classroom. About a fifth of European teachers agrees that using computers in the classroom does not have essential learning profits for pupils (Korte & Hüsing, 2007, as cited in Bingimlas, 2009).

3.5.1.5 Inability of Using ICTs (Technophobia)

Fear of technology, or technophobia, is one of the main obstacles many students and teachers face. When it comes to using technology in the classroom, both teachers and students feel they need more confidence. Mcilroy, Sadler, and Boojawon (2007) define technophobia as "anxiety about present or future interactions with computers ... negative global attitudes about computers, their operation or societal impact ... self-critical internal dialogues during actual computer interaction or when contemplating future computer interaction" (P.1286). This term can be applied to anyone who experiences this phenomenon, but it is most relevant to teachers and students in this research (Kareem, 2017).

Computer anxiety is an uncomfortable emotional state or negative feeling associated with computers. Computer anxiety is caused by a negative previous computer experience combined with an over-exaggeration of the danger posed by computer interaction (Ahmad et al., 2012). Computer anxiety is described by Loyd and Loyd (1985) and Smith et al. (1999) as "aversion of fear of being directly or indirectly involved with computers in the present or in the future." According to this definition, computer anxiety may harm users, causing them to make

unintentional mistakes (Kareem, 2017, pp. 39-40). The psychological condition of computer anxiety has been well-documented in the literature. In most studies, computer anxiety has been described as an aversion to computers, fear of computers, and apprehension toward working with computers. In other words, people may be nervous about actively using a computer or seeing someone use one or both. 'Computer anxiety' is a term that refers to negative emotions in cognitive states induced by real or imagined interactions with computer-related technology. To illustrate, students with a high degree of computer anxiety have been observed avoiding computers and computer-related environments; using computers with severe caution; possessing negative feelings about computers and reducing the necessary and required use of computers (Ahmad et al., 2012).

Computer anxiety is commonly argued to be a problem in a world where computer interactions are required, especially in educational settings (Ahmad et al., 2012). According to Jones (2013), teachers' fear of technology is anticipated and common. When teachers intend to teach, they imply that they enjoy teaching but not technology. She also mentions the fast-paced technological changes and upgrades as another explanation for why students or teachers might fear it. Another source of the fear of technology is the variety of technical resources, each of which can be used for a particular teaching purpose. A learner or instructor may be unable to master a wide range of resources or applications. As a result, they might experience anxiety (Kareem, 2017).

Additionally, Show-Hui and Wen-Kai (2010) reported that using new technology puts a lot of pressure on workers and can lead to poor results. According to Luquire (1983), if a technological transition occurs in the workplace, employees' responses should be viewed from an attitudinal or psychological perspective. While acknowledging technology's benefits to our lives, Rosen and Weil (1997) declare that certain people who use technology are afraid of it. In accordance with Cambre and Cook (1985), the introduction of technological changes can stimulate emotional and cognitive responses; some people express fear and anxiety about how these changes will affect their lives. This fear and anxiety could manifest as a phobia caused by technology (Khasawneh, 2015).

In line with the identification of Goodwyn, Adams, and Clarke (1997), there are three categories of teachers: first, those who are afraid of using technology because they are older in age and ICT is a source of anxiety for them; The second party, the "unresolved," is made up of people who can change their perspective on literacy but have mixed feelings or are unsure about

it. The third group can be defined as "optimists" or "pro ICT teachers," who believe that ICTs can effectively help English language instruction (Kareem, 2017, p. 40).

Moreover, another source of teachers' technophobia is that teachers have not been appropriately exposed to technology, or this is partially due to the fact that many currently employed teachers earned their teaching certificates prior to the advent of computer education. This caused some of them not to have a positive attitude and not feel comfortable with computers. So, these teachers need computer training courses to facilitate them to have a good intention to use ICT in their everyday activities. In agreement with Weil et al. (1990), they found that if the "introducer" of technology had a positive attitude toward technology and felt professional and relaxed with computers, the risk of technophobic reactions could be minimized (Azarfam & Jabbari, 2012, p. 453).

The Educational Testing Service research study implied that even computer coordinators who were surveyed did not have a sense that they had the skills and preparation to teach computing. If the coordinators do not feel prepared, the classroom teacher, who, according to the ETS study, is the most likely "introducer" of technology, must feel even less so. The students are severely disadvantaged as a result of this. They will learn about computers and technology from role models who may be afraid to teach them in the first place because they are nervous about using computers (Azarfam & Jabbari, 2012).

Accordingly, Wastiau et al. (2013) suggest that teachers should incorporate technology or ICTs into their everyday lives in order to develop the necessary skills and knowledge to expand their digital competence. As a result, students will also improve their DigComp, which they describe as "the confident and critical use of Information Society Technology for work, leisure and communication." (p. 16 as quoted in Kareem, 2017, pp. 40-41). Overall, developing both teachers' and students' DigComp and confidence toward using ICTs will be a good step toward thoroughly fading and eliminating their technophobia.

3.5.2 School-level Barriers

3.5.2.1 Lack of Skills/ Effective Training Courses

A dearth of technology expertise, as well as a lack of training courses for teachers and students, is another issue of ICTs use. There are many teachers and students around the world that need the training to use technology effectively. Accordance to Livingstone (2012), some teachers struggle with ICT because of their lack of ICT knowledge. Therefore, they must be well-equipped and trained to use ICT. According to Blake (2009), the difficulty is more

remarkable for teachers than for others since learning how to use technology is not intuitive. There are several teachers who are uninterested in ICTs because they are unfamiliar with how to use ICT, but they must be involved with it (Kareem, 2017). For instance, in Australian research, Newhouse (2002) discovered that plenty of teachers lacked the knowledge and skills to use computers and were uninterested in the improvements and incorporation of supplementary learning that came with incorporating computers into their teaching practices (Ghavifekr et al., 2016).

This issue can be similar from the perspective of students; since there are so many different types of ICT tools and applications, particularly on websites, students face a hard time figuring out how to use them. Some are simple to use, whereas others are complicated. Wilson and Nativio (2002) discuss how students face challenges and are perplexed, resulting in late assignments and dissatisfaction. They would rather train them to make the applications or websites uniform for students to use easily or offer them training courses. One of their preferences is Blackboard, which acts as a container for any electronic documents teachers or users share with their students. Students may face such difficulties because they need more skills to use technology for learning.

Moreover, another point referred to in this challenge is that students, teachers, and parents may need more awareness. According to Liakin, Cardoso, and Liakina (2015), even though technological devices such as smartphones and camcorders have evolved, parents and teachers may view this phenomenon as a distraction in the classroom. This is due to their lack of awareness of technology's potential in language learning and education. As Billy (2015) reported, People should be aware of what ICTs can do since they want to increase people's understanding of ICT use. So, students and their parents need knowledge and skills in using ICT for educational purposes (Kareem, 2017).

Furthermore, Pelgrum's (2001) study found that there were insufficient resources and training opportunities for teachers to receive instruction in using ICTs in the classroom. Similarly, to Beggs (2000), lack of training is one of the top three obstacles to teachers using ICT in the classroom. Besides, the finding of the recent research in Turkey revealed that the main obstacle to implementing new ICT in education is teachers' lack of in-service training (zden, 2007), and Toprakci (2006) concluded that restricted teacher training in ICT use in Turkish schools is an impediment (Bingimlas, 2009).

According to Becta (2004), the training problem is complicated since it is necessary to weigh many factors to ensure training effectiveness. Time for training, pedagogical training,

skills training, and the use of ICT in initial teacher training were all on the list. Correspondingly, Gomes (2005) reported that the challenges of incorporating emerging technologies in educational practice include

- a lack of digital literacy training,
- pedagogical and didactic training in how to use ICT in the classroom, and
- training concerning technology use in particular subject areas.

Some Saudi Arabian studies found that failures to use educational technology were due to a lack of teacher training in computer use, the use of a "delivery" teaching style rather than investment in modern technology, and a scarcity of teachers qualified to confidently practice the technology (Ghavifekr et al., 2016, p. 43).

Becta (2004) states that providing pedagogical instruction for teachers is crucial rather than just teaching them how to use ICT resources. Cox et al. (1999a) argue that If teachers are to be persuaded of the importance of using ICT in their teaching, their training should concentrate on pedagogical issues. Cox et al. (1999a) found that even after attending ICT professional development courses, teachers still did not learn how to use ICT in their classrooms; instead, they only learned how to operate a computer and set up a printer. As stated by them, this is due to the courses mostly centred on teachers learning basic ICT skills and only sometimes teaching teachers how to improve the pedagogical aspects of ICT. In line with Cox et al. (1999a), Balanskat et al. (2006) found that insufficient teacher training hinders teachers' use of ICT in the classroom and in lesson preparation. They believe that this is because training programs concentrate on improving ICT skills rather than teachers' pedagogical activities in relation to ICT (Ghavifekr et al., 2016).

However, besides pedagogical training, Becta (2004) believes that teachers should be trained in particular ICT skills. According to Schoepp (2005), with the incorporation of new technology into the classroom, teachers must be trained to use these specific ICTs. According to Newhouse (2002), teachers need initial training to acquire adequate skills, knowledge, and attitudes about using computers to support their students' learning. He argued that this necessitates ongoing professional development to maintain adequate skills and knowledge (Bingimlas, 2009).

Another argument that can be included in the circle of training skills and raising awareness is the technology's newness, which can sometimes be a challenge for users. Using technical devices for language learning is still a novice (Kukulska-Hulme & Shield, 2008). It has yet to be widely adopted, and it needs to receive more exposure to realize its full potential

as a pedagogical practice. As a result, they argue that using technology takes time to become completely integrated. In other words, embedding technology may be a long process to make it productive as it is (Kareem, 2017). Fundamentally, as new tools and approaches to teaching are introduced, teacher training is required (Osborne & Hennessy, 2003) if they are to integrate into the classroom. According to Balanskat et al. (2006), insufficient or inappropriate training causes teachers to be neither adequately equipped nor sufficiently confident in implementing complete ICT integration in the classroom. Newhouse (2002) claimed, "teachers need to not only be computer literate, but they also need to develop skills in integrating computer use into their teaching/learning programmes" (p. 45, as quoted in Ghavifekr et al., 2016, p. 43).

Teachers, according to Newhouse (2002), need technology education (which focuses on the study of technologies) and educational technology training (support for teaching in the classroom). Sicilia (2005) discovered that teachers want to learn how to use emerging technologies in their classes, but a lack of professional development resources prevents them from doing so in some subjects like science or math. Other problems with ICT professional development include training courses that need to be differentiated to meet the individual learning needs of teachers and sessions that need to be updated on a regular basis (Balanskat et al., 2006).

Pre-service teacher education may also play an essential role in allowing teachers to experiment with ICT before implementing it in the classroom (Albirini, 2006). The scarcity of ICT focus in initial teacher education is a hamper to teachers' use of what is available in the classroom throughout teaching practice (Becta, 2004). If training is not efficient enough, teachers will not have access to ICT services and resources (Bingimlas, 2009).

3.5.2.2 Mismatch between ICT Implementation and Educational Setting's Culture

Many Educational Settings (EduSet)s reject the implementation of ICT because there is a mismatch between the EduSets' culture and the introduced software/hardware. As mentioned by Thomas (cited in Albirini, 2006, p. 51), "How acceptable a new technology would be in a society depends on how well the proposed innovation suits the current culture," Thus, before introducing the new ICT in particular EduSets, we have to understand their culture. More importantly, we have to understand the intended value that the EduSets want to convey to their learners. The EduSets community will only accept the coming of the new technology if the introduced technology is congruent with their value. As Hodas (1993) points out, every technology has its own intrinsic value. As a result, successful technology implementation in one EduSet does not guarantee success in other EduSets. Besides, there should be compatibility

between the introduced software/hardware and EduSet's culture; the EduSets should also have an adaptive culture. According to Tearle (2004), an adaptive culture enables the organization to embrace positive and constructive change (Suryani, 2010).

3.5.2.3 Limited Technical Support

Teachers would only be able to resolve the barriers of ICT use with both solid technological support in the classroom and whole-school resources (Lewis, 2003). Pelgrum (2001) explored that a lack of technical assistance was one of the most significant obstacles to ICT usage in education, according to primary and secondary teachers. In line with Sicilia's study (2005), technical issues were identified as a main barrier for teachers. Waiting for websites to load, being unable to connect to the Internet, printers not printing, computers malfunctioning, and teachers having to work on old computers are all technological barriers. "Technical barriers impeded the smooth delivery of the lesson or the natural flow of the classroom activity" (Sicilia, 2005, p. 43, as cited in Ghavifekr et al., 2016, p. 42).

Korte and Hüsing (2007) reported that ICT support or maintenance contracts in schools enable teachers to practice ICT in the classroom without wasting time fixing software and hardware issues. Becta (2004) argued that "if there is a lack of technical support available in a school, then it is likely that technical maintenance will not be carried out regularly, resulting in a higher risk of technical breakdowns" (p. 16). Many respondents to Becta's survey (2004) said that technical problems could deter them from using ICT in their classrooms because they are afraid of equipment breaking down in the middle of a lesson (as cited in Ghavifekr et al., 2016). According to Buabeng-Andoh (2012), computer breakdowns are one of the difficulties in using ICT, causing interruptions in using ICT during teaching and learning processes. If technical assistance is scarce, routine computer maintenance would not be carried out, which results in teachers not utilizing computers in the classroom. Teachers will be prevented from using computers due to the fear of equipment failure, as no one will provide technical assistance in the event of a technological failure (Mwambela et al., 2019).

Several studies have shown that there needs to be more technological support for using technology in the classroom. According to Gomes (2005), ICT integration in teaching necessitates the presence of a technician, and if one is not present, a lack of technical support may be a barrier. In Turkey, Toprakci (2006) discovered that a lack of technical support was one of two significant obstructions to ICT integration in science education in schools, and this barrier could be deemed "serious." Science teachers in Saudi Arabia would agree to use computers in the classroom if they did not think they would run into issues with technical

support or hardware (Almohaissin, 2006). Conforming to Sicilia (2005), regardless of the level of professional support and access available to teachers, whether they have twenty years of experience or are new to the field, technical issues create obstacles to smooth lesson delivery by teachers (as cited in Ghavifekr, et al., 2016).

Moreover, the other factor to remember is gaining the leaders'/principals' support (Suryani, 2010). EduSet principal support is critical since technology incorporation into the EduSet is linked to resource redistribution, purchasing new equipment, reconsidering teaching schedules, anticipating teacher time to update ICT competencies, subject qualification renewal, and lesson planning (Sabaliauskas & Pukelis, 2004).

Leaders have the power to persuade teachers and other employees to approve or reject new technology. As Yuen, Law, and Wong (2003) point out, successful ICT implementation depends more on how teachers can be empowered and influenced to use the software/hardware than on the type of software. EduSet's leader is the person who has the ability to empower and influence them. Hence, attaining the leaders'/principals' approval is critical. In line with Moyle (2006), Principals are required not only to assist and underpin but also to lead their students in embracing, learning, and implementing ICT in their classrooms. The principals should also be eager to learn the new software/hardware. They should also show teachers how to embrace and learn new technologies (Suryani, 2010).

3.5.2.4 Limited-Time

According to many recent reports, many teachers are competent and confident in using computers in the classroom, but they only use them sparingly due to a lack of time. In line with Sicilia (2005), the most common difficulty all teachers identified was a lack of time to schedule technology lessons, explore various Internet sites, or examine various aspects of educational software (Ghavifekr et al., 2016). In addition, some other researchers also described time constraints and the difficulty in arranging adequate computer time for classes as an obstacle to teachers' use of ICT in their classrooms (Al Alwani, 2005; Becta, 2004; Beggs, 2000; Schoepp, 2005; Sicilia, 2005).

As stated in Becta's study (2004), teachers face a lack of time issues in many areas of their job, affecting their ability to complete tasks, with some of the participant teachers mainly reporting which ICT aspects require more time. These entail the time spent looking for Internet advice, preparing lessons, exploring and practising with the technology, dealing with technical issues, and receiving proper training (Ghavifekr et al., 2016).

Recent studies revealed that a lack of time is a significant factor influencing the adoption of emerging technology in science education (Al-Alwani, 2005). According to Al-Alwani (2005), a lack of time prevents the implementation of ICT in Saudi Arabia due to busy schedules. He explained that because Saudi teachers work from 7:00 a.m. to 2:00 p.m., and science teachers teach an average of 18 class sessions each week, both teachers and students have a limited number of hours throughout the day to work on incorporating ICT into science education. Similarly, Sicilia (2005) found that teachers spend significantly more time designing experiments incorporating new ICT than preparing conventional lessons in Canada. The teachers who were interviewed by Sicilia (2005) stated that "the constraints of different class schedules [sic] contributed to the lack of time they spent together to work on planning classroom activities" (p. 41). Accordingly, the finding also shows that the lack of time was the most important constraint on use quoted by 86–88% of primary and secondary science teachers surveyed by Dillon, Osborne, Fairbrother, and Kurina (2000). Gomes (2005) argued that one of the critical reasons science teachers do not use ICT in the classroom is the lack of time that is necessary to complete plans (Bingimlas, 2009). Last but not least, previous studies have revealed that teachers are required to finish all of their lessons within an academic year, which means they do not have enough time to include ICT in their lessons (Vien, Tjin Ai & Sung, 2019).

3.5.2.5 Lack of Coordination and Management Systems

Good coordination and management systems on the ICT application should also underpin the ICT implementation. There are specific work specializations on who will assist teachers in the classroom, monitor ICT development in classrooms, or conduct ICT training. This is critical because many teachers are hesitant to use technology in the classroom because they often do not receive immediate assistance when they are trapped with computers. Tearle (2004) states that practical factors and attitude/ethos are two fundamental factors for successfully enforcing ICT in EduSets. The practical factors include management and coordination, the time availability of teachers and students, the availability of technology, sufficient training and school support. Attitude and ethos factors cover the perception and belief of each school's members and the school's characteristics. The practical factors embody the management and coordination, time availability of teachers and students, equipment availability, adequate training, and EduSet support. Attitude and ethos factors cover the viewpoint and belief of each EduSet's members and the EduSets' characteristics (Suryani, 2010).

3.5.2.6 Inadequacy for Students' Needs

Another explanation for not using computers is the belief that they are incapable of meeting the needs of students. Some teachers have seen computer programs but think they are dumb and too mechanical and that computers are not fast enough or languages-rich enough. When asked if they would use computers if the conditions were different, the teachers who do not use computers say no again. Some teachers are hesitant to use computers because they are uncomfortable with them. At the same time, those still have reservations admit that there are some advantages to using computers, such as allowing students to interact with other students or practising writing skills, but they are not yet persuaded of any other benefits (Azarfam & Jabbari, 2012).

3.5.2.7 ICT Use and Ethical Issues

It is also crucial to think about the ethical issues around the use of technology. EduSet is the best place to develop moral character. If the EduSets believe that the proposed ICT would jeopardize their integrity, it will be categorically refused. For example, having access to the internet allows students to plagiarize or download pornographic websites. As a result, before allowing students to use the internet, EduSet leaders should develop an ethical framework for using computers and the internet, which includes banning the use of computers to endanger others or spread false information (“Internet Ethics,” 2006, p. 5).

Another crucial problem involving students is the upkeep of computer facilities. Many students are unconcerned about handling and operating computers to last longer carefully. Some of them even steal computer components. If EduSets does not fix this problem, they will be forced to spend a significant amount of money on new computers regularly (Suryani, 2010).

3.5.2.8 Insufficient funds

Effective and productive use of technology based on the availability of hardware and software and having access to resources by teachers, students, and administrative staff. The majority of the computers in the schools are the product of private companies or foreign donor gifts or programs. The maintenance of the computers and support and funding for the teachers are included when the donor already finances the project. When the project ends, the government is forced to take over, which is where the problems begin. When schools realize that there is no money from the government and they choose to keep the computers running to teach the subjects, the parents must pay for the computer lessons, which is the maintenance of both the computer repair and the teacher's salary.

Since ICT requires significant government investment, integrating technology into education systems in most developing countries takes a lot of work. The cost of ICT teaching aids is high, and the infrastructure, maintenance, funding and support of ICT facilities are only a few issues that schools face (Mndzebele, 2013).

3.5.3 Mismatch between ICT and Curriculum

The mismatch between the ICT and EduSet's curriculum is another obstacle to adopting ICT. It was not enough to have access to computers to achieve educational reform. Teachers need additional planning time for teachers to enable them to experiment with new ICT technologies (Albirini, 2006, as cited in Firmin & Genesi, 2013). For this purpose, there is a need to design the curriculum for ICT integration, and it should be for both teachers and students to enrich their ICT knowledge and skill (Aziz et al., 2021). According to the Organisation for Economic Co-operation and Development (OECD) (2001), a change in curriculum and school organizational structure is needed to sustain ICT. A standard curriculum cannot support ICT. A fundamental shift in the curriculum is needed (Suryani, 2010).

For this purpose, the curriculum should be restructured to incorporate ICT in the classroom. As a result, the curriculum should be reorganized to include how ICT is used in the classroom and should be applied. Teachers should have TPACK, and schools should be fitted with technology (Mishra & Koehler, 2006; Klçer & Odabaş, 2007). Furthermore, teachers should create an ICT-based teaching-learning environment and use technology to ensure sustainable learning. Both pre-service and in-service teacher education should be entailed in these subjects (Kula, 2010).

As we know, integrating ICTs into the curriculum is a top priority and part of its national strategy for learning in an online world (Tella & Adu, 2009). This indicates that designing an appropriate curriculum for incorporating ICT in teaching and learning processes is mainly a duty of the national Ministry of Education/ Ministry of Higher Education; it is a broader process than to be designed by a school and its own teachers.

3.6 How to eliminate the barriers of ICT integration into CL

After the barriers mentioned above of ICT in CL, we can get to realize that a wide range of factors determines the use of technology, ranging from Teacher-level factors such as awareness of the benefits of technology and personal attitudes toward technological innovations and so forth and so on to more School-level factors such as access to appropriate materials and professional development opportunities, etc. (Azarfam & Jabbari, 2012). It has been discovered

that many factors must be considered to use ICT in CL successfully. If we do not examine such aspects before executing them, we will waste a lot of time, energy, and money.

We need to have enough insights into the causes of these obstructions to eliminate the barriers of ICT in CL. According to Aziz, Dostal and Wang's study (2021), each of these obstacles is correlated, and the scarcity of any of them causes the lack of others. The following table presents the causes of each barrier and how barriers are correlated (See Table 9).

Table 9. The correlation between ICT barriers and their causes. (as it is quoted from Aziz et al., 2021, pp. 805-806).

| Teacher-level Barriers | | School-level Barriers | |
|---|---|--|---------------------------|
| Cause | Effect | Cause | Effect |
| <ol style="list-style-type: none"> 1. Lack of effective training in ICT for CL. 2. Lack of teacher's self-training that happens as a result of lack of ICT resources both at school and at home. 3. Teacher's lack of time because teachers have a number of lessons to be taught in a day and the class time is not enough to make use of ICT. 4. Teacher's resistance to use ICT in teaching since it needs time and effort. | Lack of ICT Competence | <ol style="list-style-type: none"> 1. Lack of the school's financial fund to provide enough ICT devices (hardware & software) for both teachers and learners. 2. Lack of the government's support to dedicate enough financial support for affording devices and opening ICT training courses. 3. Lack of the administrator's support in using ICT in schools during teaching and learning processes. | Lack of ICT Access |
| <ol style="list-style-type: none"> 1. Lack of teacher's ICT competence. 2. Fear of failing during the class time because of the ICT resources defect. 3. Teacher's lack of knowledge about fixing some technical problems if it happens. 4. School's lack of technical support. | Lack of Confidence | <ol style="list-style-type: none"> 1. Lack of teacher's time since training in ICT requires lots of time to master its use. 2. Lack of administrator's financial support to open ICT training course for CL purposes. | Lack of Training Course |
| <ol style="list-style-type: none"> 1. Most of the current employed teachers earned their teaching certificates prior to the advent of computer education. It is not easy for them to deal with the use of ICT and its problems when it occurs. Also, since it requires lots of time and effort they prefer traditional forms of teaching rather than virtual teaching. 2. Lack of ICT literacy and lack of confidence to use it. 3. Lack of administration support to meet the teacher's needs such as (providing technical support, affording enough ICT devices (hardware & software) for both teachers and learners, providing ICT training sessions to improve and update teacher's knowledge regarding ICT use and providing information about the use of the new coming devices that can be used in education. | Negative Attitudes and Resistance to Change | <ol style="list-style-type: none"> 1. Lack of expert technicians. 2. School's unable to afford technical support because of lack of financial support. 3. Teacher's lack of knowledge about fixing some technical problems if it happens. | Lack of technical support |
| <ol style="list-style-type: none"> 1. Lack of ICT Competence. 2. Lack of Confidence. 3. Fear of failing during the class time because of the ICT resources defect. 4. Teacher's lack of knowledge about fixing some technical problems if it happens. 5. School's lack of technical support. 6. Lack of access to ICT resources. | Technophobia | <ol style="list-style-type: none"> 1. Lack of teacher's time to plan lessons to be taught online, explore numerous Internet sites, or investigate various features of educational software, which leads to not integrating ICT in CL. 2. Class time restrictions discourage teachers from integrating ICT in teaching and learning. | Lack of time |

After studying the correlation between the barriers and their causes, we can realize the necessity of making enough efforts to eradicate ICT barriers and their causes. Government, administrators, and teachers, through the Ministry of Education and the Ministry of Higher Education, must collaborate to resolve and reduce the causes for the occurrence of barriers, as

well as work on strengthening and developing the system of ICT integration in teaching and learning (Aziz et al., 2021).

To start with, the government, the adoption, and integration of ICTs in education require solid infrastructures like Computers (and other digital tools), electricity, the internet, and a safe. It is the government's responsibility to allot sufficient funding for this and verify that the funds are used for the intended purpose. First and foremost, the government must raise funding for education in general. Second, education ministries must design policies and programs emphasizing the value of ICT-enhanced learning and provide concrete steps for teachers to implement it. Similarly, the curriculum should be updated to include ICT and its application in educational activities and classroom management chores (such as assessments and attendance) (Dele-Ajayi et al., 2019). In addition, they should focus more on training student teachers to teach in the digital age (Al Mulhim, 2014)

State governments should also stimulate the creation of an educational ecosystem to use ICT in education by funding and arranging teacher training programs and incorporating ICT into the school curriculum (Singhavi & Basargekar, 2019). In collaboration with the IT sector and professional bodies, the government should commission new courses in its colleges of education and other teacher training institutions that present and promote the development of digital literacy skills. In addition, teachers should be encouraged to enrol in Continuous Professional Development courses that will improve their digital literacy and skills, allowing them to feel more at ease utilizing ICT in their classrooms (Dele-Ajayi et al., 2019).

Teachers' professional development in ICT integration has customarily consisted of a day or week-long session. Many teachers have expressed dissatisfaction with the mismatch between workshop activities and classroom practices. As a result, a professional development program must be carefully designed and implemented to ensure that what teachers learn and what happens in their classrooms and schools are consistent. It should also focus on assisting and supporting teachers in transforming new learning into classroom practices and translating it into overall school/university improvement. It should also take into account the demands of teachers for coaching and support in terms of both time and space (Lim & Khine, 2006)

The European Commission's (2000) report to the Council and the European Parliament recognizes the importance of continual teacher professional development in ICT integration: "Training teachers in the latest information technology is a continuing process, rather than a single event" (as quotes in Lim & Khine, 2006, p. 6). To Adam (2000), regular scheduled professional development opportunities help instructors be aware of the need to improve their

ICT integration practices while keeping them current with the ever-changing faces of ICT. These opportunities need to be a combination of both the technical and pedagogical aspects of ICT integration: "basic operations of ICT tools, integration of ICT-mediated instructions into the curricula, ICT-mediated classroom management strategies, modification and evaluation of courseware, instructional and non-instructional uses of computers, matching of courseware with student abilities and learning styles, copyright protection issues, and design and implementation of scaffolding for students during ICT-mediated lessons" (Lim & Khine, 2006, pp. 6-7).

Second, the school/university principal bears significant responsibility for ICT implementation (Aziz et al., 2021). It is the job of the school/university administration to use government support to create an enabling environment for teachers to use and integrate ICT in the classroom (Dele-Ajayi et al., 2019). It is also urged that schools/universities invest sufficiently in ICT-related education in terms of the number of computers available and Internet connectivity. Schools should consider forming a Public-Private Partnership to help raise the funding they need (Singhavi & Basargekar, 2019).

Although funding is critical for technology adoption and integration, the manner and process in which these adoptions and integrations occur are also critical. The school/university administration is in charge of leading and managing the change that occurs with implementing ICT-enhanced learning. Ritchie and Rodriguez discuss several ways in which school administrators might aid in using technology. This entails dispensing and selling the vision to the community, securing resources such as time, personnel, knowledge, materials, and facilities, and offering encouragement and recognition for teachers who successfully make the transition (Dele-Ajayi et al., 2019).

Besides, the school/university administration should work on encouraging and supporting teachers to incorporate ICT into their teaching and learning, providing efficient training courses to enhance teachers' ICT skills, and ensuring adequate ICT resources and technical support, among other things (Aziz et al., 2021). Since teacher training is so important in transforming traditional teaching methods, it cannot be done in a single event and without addressing concerns like computer phobia, a lack of understanding of how to use ICTs in certain topics, a lack of school support, or a lack of confidence, etc. in utilizing ICT. In-service ICT development should be a multi-faceted approach that assists teachers in developing a positive

attitude toward ICTs and finding methods to integrate them into their regular teaching practice with increasing ease (Mynaříková & Novotný, 2020).

Teachers' training programs have a significant impact not only on the development of ICT skills and competencies but also on the development of positive attitudes and beliefs, which are critical for implementing ICT. ICT should be considered an inherent part of the school curriculum, and teachers from all faculties should be encouraged to participate in training and use ICT in their classrooms (Singhavi & Basargekar, 2019). For this purpose, it is necessary that schools/universities provide training classes for teachers in order to develop expertise in dealing with new equipment, modern technology, and pedagogical techniques in schools/universities. In all EduSets, technical assistance is required, plus teachers must also be provided with the required ICT tools, such as hardware and software. It is prominent for schools/universities to work with teachers by offering them enough time to implement new technologies in the classroom. To illustrate, a school/university could reduce the number of lessons taught by a teacher or increase the length of daily lessons. Teachers must also participate in this implementation. Teachers should make use of the ICT resources available at their schools/universities. Before entering the teaching profession, they must be adequately prepared. Teachers can prepare themselves where training is lacking by enrolling in private sessions or self-training. They should be willing to try out novel instructional methods. They must discover strategies to handle challenges surrounding their usage of ICT in schools/universities where support needs to be improved. Lastly, teachers should develop self-organization skills, which will significantly assist them in conducting their classes utilizing ICT (Bingimlas, 2009).

Moreover, some schools/universities have developed the role of ICT coordinator to provide administrative support to instructors. The ICT coordinator is a member of staff whose primary responsibility is to assist teachers in coordinating ICT planning and development. He or she affords administrative support by supervising computer facilities, ordering supplies, maintaining hardware and software, liaising with hardware and software vendors and service personnel, and collaborating with teachers and school leaders to prepare hardware/software budgets, reports, and proposals. The coordinator also assists teachers in evaluating and purchasing hardware and software and conducting needs assessments to determine what additional hardware or software could be desirable for the teachers' and students' needs (Lim & Khine, 2006).

The school administration should also work on preparing a technology leader who is comfortable with ongoing change and can keep himself/herself abreast of products, procedures,

and policies relating to ICT while underpinning and empowering teachers to adopt ICT. Furthermore, in several studies' findings, teachers have suggested that other teachers who have practical experience with ICT tools should be encouraged to train their colleagues who do not have these skills. This community of practice could assist hesitant and reluctant adopters to express their worries, gain confidence and efficacy, and eventually become willing to integrate ICT into their teaching practices (Dele-Ajayi et al., 2019).

As previously mentioned, unfortunately, it is common in schools or universities where interactive whiteboards and related software are installed in classrooms but not used by teachers. This mental barrier will have to be conquered once more, mainly through educational programs and school/university-based support for ICTs education. According to both Mynaříková and Novotný (2020) study findings, in addition to school administration help, peer support is critical. Peer influence helps facilitate instructional improvements launched from outside the school and vertical and horizontal curriculum alignment. This aspect should be emphasized in educational programs through CL and peer networks, as well as in educational settings, where more experienced and skilful teachers can serve as role models, mentors, or even ICT coordinators for others who have poor ICT competencies but have the desire and motivation to enhance their knowledge and skills. Hence, teachers' continuing education should include structured not only professional development offered through special programs and workshops but also on-the-job learning opportunities like instructional conversations and observations, advice, and sharing information, which is critical for the implementation of new practices (Mynaříková & Novotný, 2020).

In addition, there is a need to drastically develop the didactic skills needed for the meaningful exercise of ICTs in teaching via a change in the approach to ICTs in schools/Universities, as well as important documents of the state's educational policy, such as the newly created Digital Education Strategy 2030+. Given the ubiquity of technologies but underused within education, institutional leaders must understand how these tools are embraced and what challenges may obstruct their successful integration. Educational technologies in schools must be directly linked to the educational process. However, school/university directors lack orientation in this area, methodological direction, and governmental financial and legislative assistance, all of which are required for the situation to improve. Like top firms require top ICT specialists, the same is required in schools/Universities and during teacher training. We need high-quality pre-service and in-service teacher education programs,

especially because they are educating future generations who will be more impacted or faced by digitization than we are (Mynaříková & Novotný, 2020).

Regarding ICT incorporation into the curriculum, on the one hand, teacher training institutions should provide adequate and necessary assistance and support for teachers. On the other hand, teachers should be aware of what is going on in the classroom and what changes are taking place. As a result, effective ICT applications in teaching and learning are conceivable, enhancing educational programs (Salehi & Salehi, 2012).

In terms of teachers, it is the teachers' accountability to maximize government and school administration support for integrating ICT into the classroom. As previously mentioned, one of the impediments to the employment of ICT tools in the classroom is instructors' lack of expertise. By the same token, it is suggested that teachers devote themselves to skill development to become more comfortable using ICT in their classrooms. This commitment is based on two things: first, a thorough understanding of the value and importance of ICT-enhanced learning, such as the learning and engagement opportunities it provides, and second, a thorough understanding of the value and essentiality of personal and professional development (Dele-Ajayi et al., 2019).

Teachers are the direct recipients of the output in this process. It is required for teachers to participate in eliminating the barriers by dedicating time to ICT self-training, attending school training courses, and, most essentially, incorporating ICT into their teaching and learning, among other things (Aziz et al., 2021). It is also recommended that teachers always continue to develop their ICT competence and maintain their confidence in the integration process (Kurniawan, 2014, p.) because it has been discovered that effective computer-based education necessitates instructor access to computers as well as confidence and competence in their use (Azarfam & Jabbari, 2012).

Effective technology integration needs more than simply device usage. Technology integration must be compatible with how and what teachers teach. (Hyndman, 2018). Using ICTs in the classroom entails spending more time planning and preparing lessons, experimenting with new ways of presenting and sharing knowledge, interacting with students, and cooperating with them. Therefore, it is not just about mastering ICTs on a technical level; it is also about learning how to incorporate them into educational practices continuously, which

is impossible without further instruction and assistance from the school/university, Ministry, and state government (Mynaříková & Novotný, 2020).

At the same time, teachers need a serious effort to be made by teachers to consistently enrich their ICT skills and update the pedagogical techniques they can use alongside ICT use to incorporate ICT into their classrooms effectively. Otherwise, all the funds, time, and effort spent on this recovery program will be squandered (Aziz et al., 2021).

Just as importantly, to effectively incorporate ICT in the classroom, teachers need more flexibility in content management, time management, and student evaluation. For the effectiveness of ICT implementation, the overemphasis on an exam-oriented curriculum must also be decreased, and the teaching style must be learner-centric (Singhavi & Basargekar, 2019).

Chapter Summary

In this chapter, the researcher reviewed the extensive research literature conducted on ICT and Collaborative Learning, How Collaborative Learning Through ICT Use Improve Student's EFL Performance, Integrating ICT as a tool for CL (ICT to support interpersonal communication, Computer-Supported Collaborative Work (CSCW), and Computer-Supported Collaborative Learning (CSCL)). Moreover, the Technological tools that Promoting Collaboration Practically to Improve Student Learning Performance (Moodle, Google Apps, and Zoom), Barriers of integrating ICT in CL throughout teaching and learning processes (Teacher-level Barriers and School-level Barriers), and How to eliminate the barriers of ICT integration into CL have been presented in this chapter.

The next chapter will explain the methods used to find answers to the research questions and hypotheses in this study.

Chapter 4

Research Design

4.1 The aim of the research

This research study aims to study the use of ICT as a tool for CL aims at teaching EFL and simultaneously prove the impacts of using ICT as a tool for CL to improve EFL teaching and learning in State universities in Kurdistan. Besides, finding out the barriers of using ICT with the use of CL in teaching EFL and what strategies the university teachers implement to eliminate the barriers of using ICT with the use of CL in teaching EFL. With the wish to improve the level of EFL teaching performances, students' language learning performances through bringing teachers-students and students-students together to work interactively and collaboratively, which in turn promotes the reform and development of the EFL teaching and learning process.

To meet this end, several examples of the ascendancy of implementing ICT for CL in language teaching have been presented in this study, providing the positive impact of ICT on teaching and learning in EFL classes and how much it improves the learners' language learning performances. Furthermore, presenting the application of ICT in the study provides enough opportunity and resources for the EFL learners to become active learners when they learn EFL; they will be more encouraged and enthusiastic about learning and be active participants during the learning process. In the later parts of the study, the usefulness of employing ICT for CL in language teaching and learning, some effective strategies and techniques for implementing it, the barriers of using ICT with the use of CL in teaching EFL, and the practical strategies for eliminating those challenges will be presented. Consequently, it is stated that implementing and incorporating ICT in language teaching will have positive influences on EFL learners' learning and improve their language performances.

4.2 Research questions

Based on the research purposes, this study aims to answer the following questions about the use of ICT as a Tool of CL aimed at Teaching EFL:

1. What are the impacts of using ICT as a tool for CL to improve EFL teaching?
2. What are the impacts of using ICT as a tool for CL to improve EFL learning?
3. What are the barriers of using ICT with CL in teaching EFL?

4. How can we eliminate the barriers of using ICT with CL in teaching EFL?

4.3 Research Hypotheses

- H1. In University Teachers' opinion, EFL teaching improves when teachers have enough ICT competence to use ICT as a tool for CL.
- H2. In University Teachers' opinion, EFL teaching improves when teachers have enough access to ICT hardware and software to use ICT as a tool for CL
- H.3 In University Teachers' opinion, EFL teaching improves when teachers have enough confidence to use ICT as a tool for CL.
- H4. In University Teachers' opinion, EFL teaching improves when teachers do not have technophobia toward using ICT as a tool for CL.
- H5. In University Teachers' opinion, EFL teaching improves when teachers do not have a negative attitude toward the use of ICT in his/her teaching as a tool for CL.

H1, H2, H3, H4, and H5 correspond to research question 1.

4.4 Methodology

In order to collect data for the research, A mixed methodology has been used by the researcher. A mixed methodology is a combination of the quantitative and qualitative methods of data collection. To start with, in the quantitative method, the researcher primarily employs post-positivist claims for developing knowledge (e.g., cause and effect thinking, reduction to specific variables and hypotheses and questions, measurement and observation, and theory testing). The researcher uses inquiry strategies like experiments and surveys and collects data based on predetermined instruments that yield statistical data.

In the qualitative method, the researcher frequently makes knowledge claims based on constructivist perspectives (i.e., the multiple meanings of individual experiences, meanings socially and historically built to develop a theory or pattern) or advocacy/participatory perspectives (i.e., political, issue-oriented, collaborative, or change-oriented) or both. Narratives, phenomenology, ethnographies, grounded theory studies, and case studies are examples of inquiry methodologies. The researcher gathers emerging open-ended data to extract themes from it.

In a mixed-method approach, the researcher makes knowledge claims based on pragmatic grounds (e.g., consequence-oriented, problem-centred, and pluralistic). The researcher uses the strategies of inquiry that entail collecting data either simultaneously or sequentially to comprehend research problems best. The data collection also entails gathering

both numerical (e.g., on instruments) and textual (e.g., on interviews) information so that the final database contains both quantitative and qualitative data (Creswell, 2003).

The reason behind adopting mixed methods in this research study is that mixed methods research can help researchers better understand the associations and contradictions between qualitative and quantitative data. It can also give participants a clear voice and allow them to share their experiences in the research process, and it can stimulate various avenues of exploration that enrich the evidence and allow questions to be addressed more deeply. As diverse viewpoints illuminate the topics being examined, mixed approaches will promote greater scholarly interaction and enrich the experiences of researchers (Shorten & Smith, 2017).

The mixed methodology entails mixing or integrating qualitative and quantitative data in a research study.

Qualitative data is typically open-ended, with no predetermined answers, whereas quantitative data is usually closed-ended, as in questionnaires or psychological instruments (Creswell, 2014). In this study, the multilevel model of triangulation design has been practised with different methods like, first, interviews and as a qualitative method to know the EFL teachers' viewpoints regarding the use of ICT as a tool for CL aimed at teaching EFL. Second, class observation as a quantitative method to know the level of the use of ICT in CL meets expectations. Third, the post-observation interview has been practised as a means of triangulation to look into and determine the precise causes and obstacles that prevent Kurdish EFL university lecturers from utilizing ICT as a tool for CL in their teaching classes.

Based on the Methodological Triangulation model, each of the methods mentioned above has been conducted, and their finding has been used to present the research outcome (See Figure (20) Methodological Triangulation Design for Conducting the Research Method).

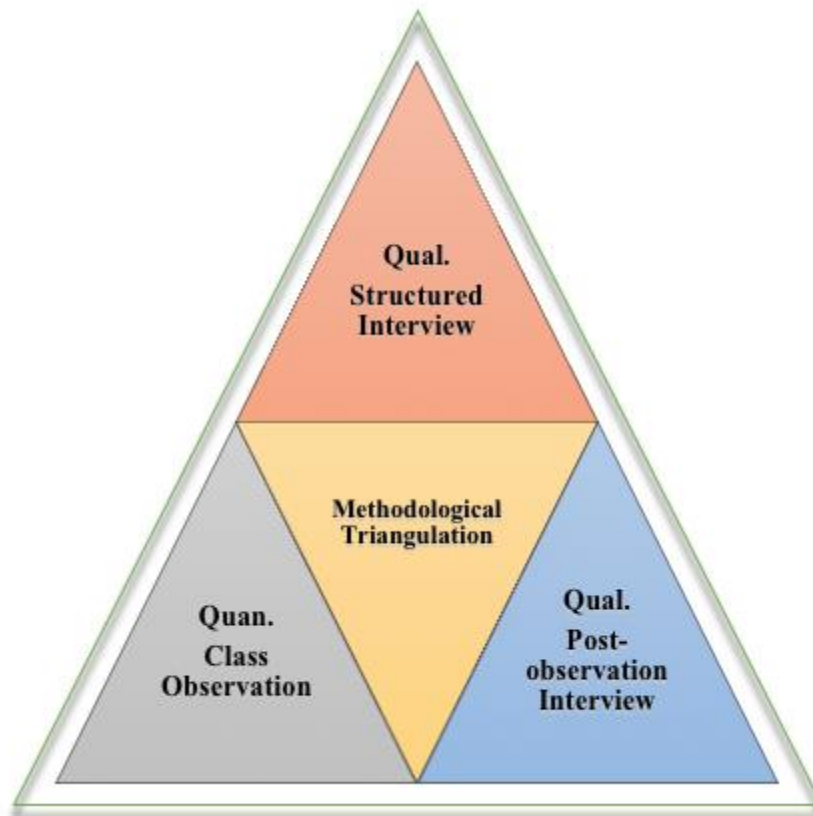


Figure 20: Methodological Triangulation Design for Conducting the Research Method (Creswell & Clark, 2011, 65).

4.4.1 Interviews

Interviewing is a systematic method for gathering data from people. According to Burns (1997: 329), “an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinion from another person” (as quoted in Kumar, 2011). The form interview will be a structured interview where the researcher asks a predetermined set of questions and uses the same phrasing (wording) and order of questions as indicated in the interview schedule. An interview schedule is a written list of open-ended or closed-ended questions prepared for use by an interviewer in a face-to-face conversation (this may be face-to-face, by telephone, or by other electronic media). One of the most significant benefits of a structured interview is that it dispenses uniform information and assures data comparability (Kumar, 2011).

- A structured interview will be adopted to investigate university EFL teacher’s feelings and experiences with the use of ICT as a tool for CL to determine whether ICT can be used as a tool for CL,
- to what extent teachers with the use of ICT for CL can dispense activities that improve

students' engagement, participation, social networking, online discussion, sharing knowledge, working collaboratively, learning interactively, exposure to the EFL, and improving students' interest and enhancing their knowledge in EFL?

- how much the factors such as (teacher's ICT competence, access to ICT hardware and software, confidence to use ICT, technophobia, and teacher's negative attitude toward the use of ICT) influence both ICT use for CL and teaching performances?
- how much does the lack of the aforementioned factors obstruct teachers from using ICT effectively for CL?
- what are other barriers of using ICT with CL in teaching EFL?
- How to eliminate the barriers of using ICT with CL in teaching EFL?

For this purpose, the structured interview, class observation, and post-observation interview have been conducted. The structured interview questions consist of both open and close-ended questions to achieve a deeper and more precise understanding of the EFL university teachers' opinions regarding the research study questions. The interview session consists of two sections. In the first section, which is the body part of the interview, there are six dimensions which are detailed questions to be asked regarding (1. EFL University teachers' general viewpoint of student learning through collaboration in small groups (questions 1.1 - 1.3), 2. EFL University teachers' general viewpoint of using ICT in teaching and learning EFL (questions 2.1 - 2.3), 3. Impacts of using ICT for CL in teaching EFL (questions 3.1 - 3.11), 4. Impacts of using ICT as a tool for CL to improve EFL learning (questions 4.1 - 4.13), 5. The barriers of using ICT with CL in teaching EFL (questions 5.1 - 5.15), and 6. Suggestions to eliminate the barriers of using ICT with the use of CL in teaching EFL (questions 6.1 - 6.2)) (see Appendix 1).

In the second section, the interviewees were asked about demographic data such as (Institution, Department, years of teaching experience, specialized teaching subject, and participation in ICT and CL training courses). See Appendix 1 (from question 1.1 to question 6.2).

To answer the research questions, face-to-face interviews were conducted with the 28 university teachers of the English as a Foreign Language Department in Kurdistan. All the interviews were recorded, and transcripts were made for detailed analysis.

4.4.2 Class Observations

In this study, classroom observations were one of the fundamental research methods of gathering data that enabled the researcher to observe to what extent the actual

practice of ICT in CL took place in the EFL classroom. For this purpose, class observation was conducted, and each interviewee voluntarily permitted the researcher to observe their teaching sessions. The observation was completed after each professor's initial interview.

The number of class observations is equivalent to the number of interview sessions, i.e. each interviewee's class teaching has been observed to study whether ICT is used as a tool in CL by university teachers in Kurdistan. If not, what are the barriers that prevent them from implementing it?

Direct observation has been conducted in this study, which entails viewing the objects or persons being studied in the situation without interacting with them (Kawulich, 2012). So, in order to have a deep understanding of the phenomenon, the researcher observed the teaching session as a participant, but she was not a group member. Both teachers and students were aware of being observed by the researcher, which is for academic purposes, and it will be completely anonymous; they were more likely to be open with the researcher to help her achieve enough knowledge about the phenomenon (Kawulich, 2012).

For class observation purposes, the researcher has designed a printed structured checklist of 22 statements with a 5 Likert scale (1. Meets expectations in few or no respects, 2. Meet expectations in some respects, 3. Meets expectations in most respects, 4. Meets expectations in all respects, 5. Exceeds expectations in all respects) (see Appendix 2). Preparing this checklist is to help the researcher: What should be kept in mind to observe? How should the observation be documented? Or how can the precision of the observation be guaranteed? (Kothari, 2004).

The researcher has adopted the checklist statements to make them relevant to the research study. The researcher has personally attended the class to observe the teaching sessions. Twenty-eight classroom observations were conducted in 7 different universities in Kurdistan. The teacher chose the observed lessons. During the observation, both teacher and students were observed. According to Merriam (2009), conducting observations in addition to interviews has various advantages. They are:

- (1) outsiders may notice things that have become routine for the participants, things that may help the researcher understand the topic under study;
- (2) observations can help to triangulate emerging findings;
- (3) observations can help provide some context to the study or provide specific incidents or behaviors that can be used as reference points for future interviews; and;
- (4) the researcher may witness something that

participants would not feel comfortable saying in an interview (as cited in Irby, 2017, p.63-64).

So, class observation in this research helped the researcher to have the opportunity to observe the actual practice of ICT in EFL classes, to what extent it is used as a tool in CL, and investigate the reasons behind not implementing ICT in CL in EFL classes at universities in Kurdistan.

4.4.3 Post-observation Interviews

This method has been conducted as an extended method to the methods mentioned earlier to investigate and achieve the exact reasons and barriers that prevent EFL university teachers in Kurdistan from using ICT as a tool for CL in their teaching classes. The Post-observation interview was not settled at the beginning of the study, but since the researcher needed further methods to collect enough exact data for the research, she had to implement the post-observation interview method.

The post-observation interview has been taking place mainly on the same day of the class observation or a day after the class observation. As it comes to literature, it is most valuable if a post-observation interview happens within a few days of the classroom observation while the activities are still fresh in the minds of both educator and observer (Weimer, 1991). According to Montgomery, “it is really important for the debriefing interview to take place immediately ... Lessons, lunches and days should not be allowed to intervene” (2002, p.54). For this reason, the researcher conducted the post-observation interview no later than one day following the observation, and before each interview, the observer reviewed the notes and went through the prepared questions based on the previous class observation to ask the teacher. The observer had an in-depth interview with each teacher to ask them some questions regarding the reasons behind not making use of ICT in CL in their teaching. All the interviews were recorded, and transcripts were made for detailed analysis.

4.5 Validity of the research

The researcher has adopted a multiple case study design for this work because it allowed her to have a deeper understanding of the use of ICT as a tool in CL by analyzing various data from different methods of data collection. In addition, the study employed both qualitative and quantitative research approaches like structured interviews, structured class observation, and post-observation interviews. Data is gathered from EFL university teachers in Kurdistan from

7 universities in different cities. In this research, mixing methods is a type of triangulation that aims to mitigate the flaws of single approaches.

The sample size in qualitative research is frequently smaller than in quantitative research methods. This is due to qualitative research methods are frequently concerned with gaining a thorough understanding of a phenomenon or are focused on meaning (and heterogeneities in meaning)—which are frequently centred on the how and why of a particular issue, process, situation, subculture, scene, or set of social interactions (Dworkin, 2012). This research study conducted an in-depth structured interview with 28 EFL teachers for about 30-45 minutes. This sample size of interviewing has been conducted because, as a nature of in-depth interviewing and in line with the aim of the study, in-depth interviewing favours an inductive and emergent approach rather than being concerned with making generalizations about a larger population of interest and relies less on hypothesis testing (Dworkin, 2012). All the teachers voluntarily participated in the study. A trial interview is conducted to see if any unsuitable items are present.

Regarding the class observation, 28 observations have been conducted. The researcher personally attended the classes to observe the level of the use of ICT in CL in class, recording any further data that would improve the research, and finding out the reasons for not integrating ICT in CL in EFL classes at universities in Kurdistan.

Post-observation interviews were conducted with the same 28 participants of the research. The researcher interviewed the EFL university teachers face-to-face for about 15-20 minutes to find out the barriers that prevent EFL university teachers in Kurdistan from using ICT as a tool for CL in their teaching classes.

The research respondents were EFL university teachers teaching the English language in Kurdistan-Iraq throughout the 2022-2023 academic year. The reasons behind choosing the English Language Department are that it provides well-designed program-based language learning, and the English language can be acquired naturally there since teachers provide themed activities with practising various subject disciplines. See Table (10).

Table (10) shows that teachers all have the English language major 6 of the teachers were from the College of Primary Education, 8 of them were from the College of Education, 12 of them were from the Faculty of Education, and 2 of them were from the college of languages.

The respondents have been selected from 7 state universities in Kurdistan See Table (10). They were a combination of Male and Female (13 Male & 15 Female) teachers who were holders of academic scientific titles: Assistant Lecturer, Lecturer, Assistant Professor, and

Professor. From each university, four teachers participated. See Table ((10) for more detailed EFL University teacher’s demographic data).

To ensure the anonymity of the EFL teachers who took part in the study, they will be named (Teacher 1 = T1, Teacher 2 = T2, ..., and Teacher 28 = T28 and the universities will be named (University 1 = U1, University 2 = U2, University 3 = U3, University 4 = U4, University 5 = U5, University 6 = U6, and University 7 = U7).

Table 10. The demographic data of EFL University teachers in the state universities in Kurdistan.

| Teacher | University | Department | Male/ Female | Years of Teaching Experience | Specialized Teaching Subject |
|---------------------------|------------|--|-----------------------------|------------------------------------|--|
| T1, T2, T3, T4 | U1 | English Language / Faculty of Education | 2 Male ----- 2 Female | 11, 4 ----- 24, 41 | Applied linguistics and Testing, English Literature (teaching English through literature), Teaching English as a Foreign language (TEFL), Linguistics. |
| T5 ----- T6, T7, T8 | U2 | Translation / College of Languages ----- English Language / College of Basic Education | 2 Male ----- 2 Female | 14, 12 ----- 11, 13 | TESOL, English language and translation, ELT, Modern English literature. |
| T9, T10, T11, T12 | U3 | English Language / College of Education | 1 Male ----- 3 Female | 10 ----- 21, 9, 10 | TEFL, Applied linguistics, English language teaching (ELT) Methodology, Teaching English to speakers of other languages TESOL. |
| T13, T14, T15, T16 | U4 | English Language / College of Basic Education | 2 Male ----- 2 Female | 40, 13 ----- 21, 4 | Linguistics, Applied Linguistics, ELT, Cross-cultural communication and an introduction to research. |

| | | | | | |
|---------------------------|----|---|-----------------------------|---------------------------|--|
| T17, T18, T19, T20 | U5 | English Language / Faculty of Education | 3 Male ----- 1 Female | 10, 11, 6 ----- 14 | English language and translation, TEFL, Modern English literature, Semantics. |
| T21, T22, T23, T24 | U6 | English Language / Faculty of Education | 2 Male ----- 2 Female | 32, 12 ----- 25, 16 | English Literature (teaching English through literature), ELT, Curriculum and instruction, TEFL. |
| T25, T26, T27, T28 | U7 | English Language / College of Education | 1 Male ----- 3 Female | 27 ----- 15, 13, 22 | TESOL, Applied linguistics, ELT Methodology, TEFL. |

Table (10) also represents the teachers' different years of teaching experience in EFL, starting from 4 - 41 years of teaching experience.

In addition, Table (10) cites the teachers' specialized teaching subjects. Three of the teachers have specialization in Applied linguistics, 1 of them in Applied linguistics and Testing, 1 of them in Cross-cultural communication and an introduction to research, 1 of them in Curriculum and instruction, 3 of them in English Language Teaching (ELT), 2 of them in ELT Methodology, 2 of them in English language and translation, 2 of them in English literature (teaching English through literature), 2 of them in Linguistics, 2 of them in Modern English literature, 1 of them in Semantics, 5 of them in Teaching English As a Foreign Language (TEFL), and 3 of them in Teaching English to Speakers of Other Languages (TESOL).

In line with Table (11), 12 teachers claim to participate in ICT and CL training courses, while 16 have yet to participate.

Table 11. Kurdish University EFL Teacher's participation in ICT and CL training courses.

5. Have you ever been participated in ICT and CL training courses?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----|-----------|---------|---------------|--------------------|
| Valid | Yes | 12 | 42.9 | 42.9 | 42.9 |
| | No | 16 | 57.1 | 57.1 | 100.0 |
| Total | | 28 | 100.0 | 100.0 | |

Regarding their level of ICT competency, 5 of the teachers see themselves as Not very skilled, 18 of them think they are Somewhat skilled, and 5 assume that they are skilled (See Table (12)).

Table 12. Kurdish University EFL Teachers' self-assessment for their own ICT Competency.

6. If you assess your ICT Competency on what level are you?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|------------------|-----------|---------|---------------|--------------------|
| Valid | Not very skilled | 5 | 17.9 | 17.9 | 17.9 |
| | Somewhat skilled | 18 | 64.3 | 64.3 | 82.1 |
| | Skilled | 5 | 17.9 | 17.9 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

Throughout the data collection process, all the participants were assured that the interviews, class observations, and post-observation interviews were strictly for academic purposes and would be treated with high confidentiality.

The University teachers were invited to participate in this research and were contacted first through email to have an interview session with them; after interviewing, the researcher personally requested them to attend their classes for observation purposes and interview them after the class observation.

4.6 Instruments

The following instruments will be adopted in the research:

- structured interviews,
- class observations,
- post-observation interviews,
- SPSS & Microsoft Excel.

4.7 Data Collection Procedures

This research has selected 7 EFL universities in Kurdistan-Iraq in different cities as the typical representative and focuses on using ICT as a tool for CL as an entry point to gather enough data. The researcher focused on understanding and mastering the current situation of EFL universities in Kurdistan regarding using ICT as a tool of CL. For this purpose, the researcher had to form interaction with EFL teachers and carry out methods such as structured interviews, class observations, and post-observation interviews.

For the sake of achieving the research aims, this research has been conducted in three stages:

In the first stage, the researcher interviewed the teacher one-on-one, which lasted mainly about 30-45 minutes. The interview is carried out in an atmosphere that suits both the interviewer and interviewee, for instance, in the interviewee's office at the University, to exchange and express their ideas in a relaxed and comfortable place. In a time of place inconvenience, the interviewer and interviewee had chosen a cafe and dessert shops. The interview sessions were recorded by iPhone Pro Max 12 Voice Memos App, from which transcripts were made for detailed analysis.

The second stage started with class observation sessions; the researcher personally attended and observed the class teachings. Despite taking notes, the observer collected documents that can be used as a form of recording data.

Based on the level of ICT use in CL or not integrating it in CL, the researcher had to have a post-observation interview with the teachers after the class observation sessions. The post-observation interview was used as a third stage to investigate the reasons behind not implementing ICT in CL in the EFL classroom and record the data that improved the research outcomes.

All the gathered data throughout this process has been carefully recorded and double-checked after each session of interviewing and observation to ensure their reliability.

4.8 Data Analysis Procedure

In this research, a set of multiple data collections have been conducted to achieve adequate data sources from the interview, class observation, and post-observation interview.

To start with the interview, since the interview questions consist of both open-ended and closed-ended questions, the data were analyzed qualitatively and quantitatively to have a precise and deep understanding of the phenomenon.

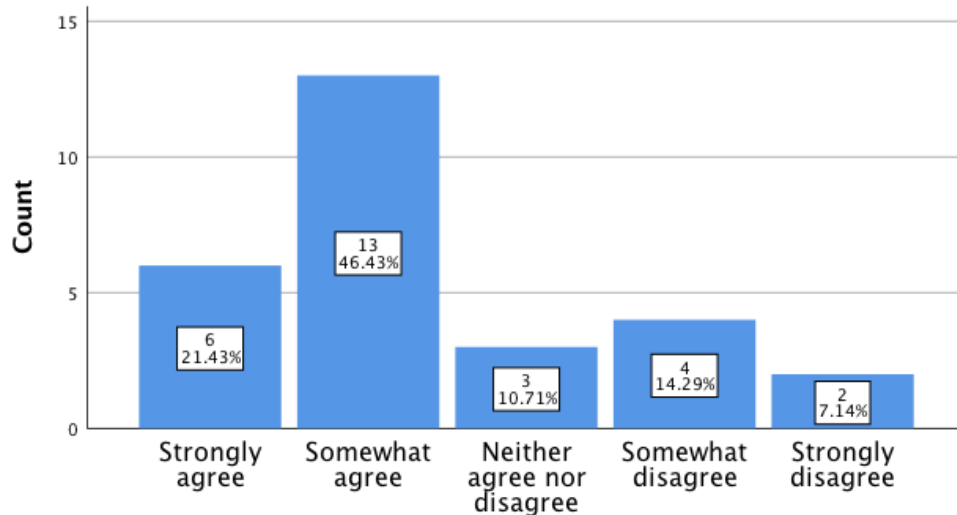
The data were analyzed qualitatively in terms of the open-ended questions of the interviews. After transcribing the instructors' interviews, they were analyzed separately through transcription, coding, classification, tabulation, and summary. Examples of the participants' coding are presented below:

Theme: Do you think the use of ICT has an impact on improving teaching performance?
How?

| Code | Explanation |
|------|-------------|
|------|-------------|

| | |
|---------------------------------------|--|
| <p>T1, T2, T3, T4, T6, T7.</p> | <p>Sure, teachers are using all the means of technology and are familiar with their advantages. That is why they get the best of these tools for teaching.</p> <p>Sure, teachers will have more opportunities to practice technology for teaching purposes and have the chance to present the material effectively.</p> <p>It makes teaching interesting and motivating and develops student autonomy.</p> <p>Yes, teachers can give different tasks to small groups, create competition among them, and encourage students to participate in discussions.</p> <p>Sure, it is. Nowadays, students can easily access communicative technologies; thus, we can direct them to benefit from them.</p> <p>It helps supply instruction accordingly and provides learners with input-based knowledge.</p> |
| <p>T5, T12, T13, T24.</p> | <p>It is helpful in a non-class environment. They would be able to collaborate, even if they are in different places. Students are not limited to time and place.</p> <p>Only for the listening part: PowerPoint is good in terms of general teaching. Using too much technology is misleading and distracting. There is no great language input from using technology.</p> <p>It's useful, but the lack of technical staff and issues with the net may be an obstacle to students' learning.</p> <p>ICT or technology is like any other tool that can be used by the teachers in class to support language learning but it's not the technology itself but it's how the tasks are designed around the technology to support students learning. can be introduced to the way how to use technology to support their learning. It's right that technology can do it by the instructions coming around the technology to support student learning.</p> |

Regarding the close-ended questions, frequency and percentage were used to present how many EFL university teachers in Kurdistan were (strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree). See the below Graph:



3.1 ICT is a useful tool to be used for CL.

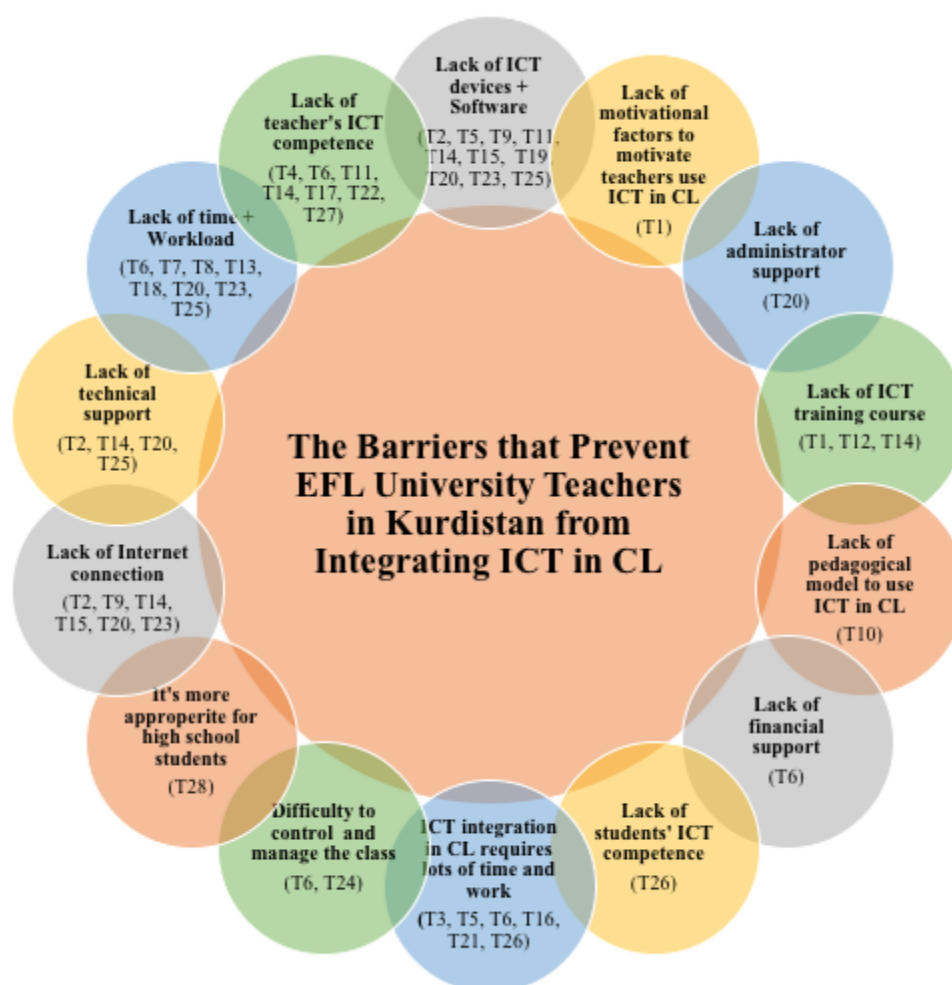
The Graph presents 6 (21.43%) teachers strongly agree (SA), 13 (46.43%) of them somewhat agree (SWA), 3 (10.71%) of them neither agree nor disagree (NANDA), 4 (14.29%) of them somewhat disagree (SWDA), and 2 (7.14%) of them strongly disagree (SDA). According to the teachers' responses, the majority of them 13 (46.43%) teachers SWA ICT is a useful tool for CL, and the second most responses are for SA 6 (21.43%).

The data collected from class observation has been analyzed quantitatively to determine to what extent the actual practice of ICT in CL took place in the EFL classroom.

The Post-observations interview data has been analyzed in a qualitative manner; they were analyzed separately through transcription, coding, classification, tabulation, and summary. For instance, see the following Table and Diagram:

| Codes | Explanations | Barriers |
|-------|--|--|
| T1 | Most university professors, without a doubt, have some knowledge of how to use ICT in the classroom, but it does not mean we know everything. In our university, there aren't enough ICT training classes for teachers. We require training courses to be current in terms of ICT applications and instructional approaches. Teachers must also be motivated to use ICT in the classroom. Knowing how to use ICT is useless if you are not driven to use it in class. As a result, I believe that increasing the factors that motivate teachers to use ICT is critical, such as providing a supportive environment for teachers to use ICT by providing enough ICT devices for both teachers and students, Internet access in the classroom and the teachers' office, technical support, administration support, and | Lack of the ICT teacher training course + lack of the motivational factors to encourage teachers to use ICT in CL. |

| | | |
|-----------|---|---|
| | enriching the teacher's promotion process in the faculty, such as writing appreciation letters for those teachers who deserve to be recognized for their achievements. | |
| T2 | Unfortunately, the ICT infrastructure in our universities has received little attention. Although we have access to various electronic equipment in our classes, some of them are defective and require expert assistance to repair. We have technical personnel, but they are not adequately equipped to handle any technological issues. Second, the technical instruments available to students and teachers are insufficient. For instance, our classrooms do not have computers, so I normally carry my laptop to class. Another issue is the internet connection. You cannot access the internet in class at all, regarding in our office we have 2 cords of internet it is not wireless. One of the internet sockets is worn out, the other one is not enough for a group of teachers. | Lack of technical support + the insufficient number of ICT devices and lack of internet connection. |



Chapter Summary

This chapter has provided the research design, including the research aim, questions, and hypothesis.

Additionally, the research methodology has been described in this chapter, along with specific methods used to gather the necessary data to meet the study's goals and objectives while being methodologically sound and practically feasible. It was possible to collect in-depth and rich data to analyze the experiences and opinions of the EFL university teachers in Kurdistan concerning the use of ICT as a tool of CL in teaching EFL by designing the study utilizing mixed methods in the form of Methodological Triangulation Design.

Validity of the research, Data collection procedure, and Data analysis procedure are other important focuses of this research chapter.

In the following chapter, the research data result will be presented in detail by displaying the collected data in Tables, Graphs, and Figures as an add-on for comprehending the research data of the study.

Chapter Five

5. Research Result

This chapter aims to answer the research questions and hypotheses according to the research process. This chapter consists of three sections. The first section analyzes and presents the findings of the university EFL teachers' interviews based on their responses regarding using ICT as a tool for CL in teaching EFL. In the 5.1.1 subsection, the researcher analyzes the questions (1.1-1.3) that she wants to achieve teachers' viewpoints about students learning through collaboration in small groups. In the 5.1.2 subsection, she will analyze questions to achieve the teachers' general viewpoint of using ICT in teaching and learning EFL (2.1-2.3). The aim behind asking the above-mentioned questions is to get information about the teachers' background knowledge regarding CL and the use of ICT in teaching EFL.

In the third subsection, which is 5.1.3 through directing some statements and asking the teachers some questions, try to find the answer of the first research question (*What are the impacts of using ICT as a tool for CL to improve EFL teaching?*) and answering the 1-5 research hypotheses (*H1. In the opinion of University Teachers, EFL teaching positively improves when teachers have enough ICT competence to use ICT as a tool for CL*), (*H2. In the opinion of University Teachers, EFL teaching positively improves when teachers have enough access to ICT hardware and software to use ICT as a tool for CL*), (*H.3 In the opinion of University Teachers, EFL teaching positively improves when teachers have enough confidence to use ICT as a tool for CL*), (*H4. In the opinion of University Teachers, EFL teaching positively improves when teachers do not have technophobia toward the use of ICT as a tool for CL*), and (*H5. In the opinion of University Teachers, EFL teaching positively improves when teachers do not have a negative attitude toward the use of ICT in his/her teaching as a tool for CL*). For this purpose, the teachers have been asked the statements and questions (3.1-3.11).

In the fourth subsection, 5.1.4, the responses for statements and questions (4.1- 4.13) were analyzed to get the response for the second research question (*What are the impacts of using ICT as a tool for CL to improve EFL learning?*).

In the fifth subsection, 5.1.5, the researcher analyzes the responses to the statements (5.1 - 5.15) to answer the third research question (*What are the barriers of using ICT with the use of CL in teaching EFL?*).

Concerning the sixth subsection, 5.1.6, the responses of the statements (6.1 - 6.2) have

been analyzed to answer the fourth research question (*How can we eliminate the barriers of using ICT with the use of CL in teaching EFL?*)

The second section presents and analyzes the class observation data, which is regarding to what extent the EFL university teachers in Kurdistan practice ICT as a tool in CL during their actual teaching. Analyzing this data is additional data to the interview data to find more information regarding the use of ICT as a tool in CL.

The third section analyzes the post-class observation interview to find more data about the actual reasons behind not practising or limited practising of ICT as a tool in CL in their classes. In addition, what are the teachers' suggestions to overcome the barriers? With this data, the researcher answers the fourth research question (*How can we eliminate the barriers of using ICT with CL in teaching EFL?*).

5.1 First section: University EFL teachers' interviews in Kurdistan

5.1.1 Teachers' general viewpoint of student's learning through collaboration in small groups.

5.1.1.1 Teachers' understanding of the student's learning through collaboration in small groups.

The researcher interviewed the teachers with the question '1.1 What do you understand of students' learning through collaboration in small groups?' to know the teachers' viewpoint about the students' learning via CL. The responses were as the following:

Table 13. a. Teachers' understanding of students' learning through collaboration in small groups.

| Codes | Explanations |
|--|--|
| T2, T3, T10, T16, T17, T19, T25, T28. | <p>Collaborative Learning is one of the best forms of studying.</p> <p>A good strategy for learning.</p> <p>It is an effective way to engage students in a meaningful situation where learning occurs naturally.</p> <p>It is an instructional strategy that engages learners in performing tasks, discussing topics, and making choices rather than simply listening to the teacher's presentation.</p> <p>It is an approach to teaching or learning a language by dividing students into groups and assigning them tasks through collaborative learning, many skills come to the fore.</p> <p>It is a learning method that facilitates understanding processes</p> |

| | |
|--|---|
| | <p>and gathering extra information from the group members.</p> <p>I find it an important and useful method. Students learn much better when they have a chance to cooperate with their peers in fulfilling a particular task.</p> <p>Is a method that I can monitor and manage students' peer working and autonomy, improve students' self-confidence, circulate opinions in a more relaxed way, and practice turn-taking strategies.</p> |
|--|---|

As it is presented in Table (13. a.), six of the teachers (T2, T3, T10, T16, T17, T19, T25, and T28) see CL as a useful and effective method or approach to learning that, in general, manages students' working together, which facilitates students' learning and understanding better, despite improving their autonomy and self-confidence.

Table 14. b. Teachers' understanding of students' learning through collaboration in small groups.

| Codes | Explanations |
|---|--|
| <p>T1, T4, T5, T8, T7, T9, T11, T13, T14, T15, T18, T20, T21, T22, T23, T24, T26, T27.</p> | <p>Nowadays, our EFL students are willing to take part in small groups collaboratively, since they are more autonomous in learning.</p> <p>Students can learn from each other and make individual progress. They also follow each other and can see the differences between them.</p> <p>Collaborative learning is a situation in which two or more students (in small groups) learn or attempt to learn something together.</p> <p>Collaboration enhances student learning as it helps learners develop their critical thinking and problem-solving skills.</p> <p>Students try to answer given questions together, helping each other by sharing and comparing their ideas and observations. CL can be very motivating for students. Some shy students may not be comfortable with talking in front of the whole class, but they do not mind speaking in small groups. Weaker students may learn from better ones.</p> <p>Working collaboratively, students are aided rather than competitive work, particularly, in the subjects that need cooperation. That is, collaborative work in the classroom is helpful to a great extent for the activities that demand group or pair work, where students can think, pair, and share. This is more helpful if students will be divided into small groups to brainstorm and discuss the ideas and concepts freely.</p> <p>Work on the tasks in groups and distribute the tasks among them.</p> |

| | |
|--|---|
| | <p>share information and gain more confidence.</p> <p>They get skills from each other especially when their level is inferior. They can share each other's ideas and get new skills.</p> <p>What I understand from this is that students learn in a better way when they share their knowledge together and talk together especially in smaller groups as this allows them enough time to talk. They might not have a chance to participate and talk in bigger groups.</p> <p>Small groups are always easier to cope with. When each learner has time to talk, participate, express, etc., then it would be easier to be with them, to collaborate with them during the class.</p> <p>It means students learn from each other when they work together on a learning project.</p> <p>It is pair or group work through which the students work on the same or similar task.</p> <p>I think through working together collaboratively through cooperation, appreciation, and discussion students learn much.</p> <p>In the classroom not only for the Learners but also for the teachers is one of the best strategies to be used. Well, it is good for learners because there is no age gap between them, they may take each other's opinion more seriously because they are from their peers, etc.</p> <p>Could be understood generally as collaborating of students in groups instead of frontal teaching, for instance, to increase student talking time. Or in terms of Collaborative learning, which is a defined method of teaching in class. I have to admit I only know a little about it, like that it is focused on genuine group work, where the group is responsible for each individual's participation and that students work on tasks which enable them to discover things on their own rather than just learning them from the teacher.</p> <p>Working together, learning together, and cooperating on various tasks.</p> <p>Collaboration is necessary for any group work/pair work and students do benefit from learning in teams – in the online regime, we used shared Google Docs as a collaborative tool.</p> <p>It gives students a chance to develop soft skills like time management, networking, teamwork, creative thinking, decision-making, communication, leadership, and flexibility.</p> |
|--|---|

In Table (14. b.), 18 of the teachers (T1, T4, T5, T8, T7, T9, T11, T13, T14, T15, T18, T20, T21, T22, T23, T24, T26, and T27) focus on students' willingness to work in group and

how students through CL students can work collaboratively and learn from each other in addition to boosting students' soft skills as it mentioned by T27.

Table 15. c. Teachers' understanding of students' learning through collaboration in small groups.

| Codes | Explanations |
|----------|--|
| T6, T12. | <p>Understanding from my experience with the students' collaborative learning, I suppose it is beneficial. The students enjoy it and it helps the shy students to participate as well. Of course, there are drawbacks if the teacher could not manage a CL class well, but to me, the benefits are more. I use it in my classes.</p> <p>It will be effective only when the class is multicultural, otherwise, it is a waste of time. Since in a multicultural class student not only learn and fulfil the required assignment but also they learn much about each other's culture just like killing two birds with one stone. For me if it is about students learning CL is not the only method to help the students learn, that is why I prefer using CL in a class which brings much more learning for the students besides learning the required topic.</p> |

While 2 of the teachers (T6 and T12) even though they both admit the benefits of CL for students' learning, T6 claims that there are also disadvantages of CL if the teacher cannot manage a CL class well, while for him/her, the positives outweigh the negatives that is why CL is one of the methods he/she implement is in his/her classes. T12 is somehow more specific and limits the advantages of CL only when the class is multicultural; otherwise, she/he views it as a waste of time (see Table (15. c.)).

5.1.1.2 Teachers' viewpoint on whether CL is an effective method for learning EFL.

In the responses to the question '1.2 Do you think CL is an effective method for learning EFL?' 28 (100%), teachers believe CL is an effective method for learning EFL. (See Table (16)).

Table 16. Teacher's responses to the effectiveness of CL as a method of learning EFL.

| 1.2 Do you think CL is an effective method for learning EFL? | | | | | |
|--|-----|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Yes | 28 | 100.0 | 100.0 | 100.0 |

5.1.1.3 The goals students might achieve from working together

The EFL university teachers respond to the query “1.3 What are the goals students might achieve from working together in groups?” as in Table (17).

Table 17. Teachers’ responses regarding the goals students might achieve from working together in groups.

| | | Responses | | Percent of Cases |
|----------------------------------|---|------------|---------------|------------------|
| | | N | Percent | |
| Group working goals ^a | Develop_critical_thinking_skills | 24 | 21.8% | 85.7% |
| | Exchange_knowledge | 28 | 25.5% | 100.0% |
| | Share_expertise | 19 | 17.3% | 67.9% |
| | Increase_motivation | 16 | 14.5% | 57.1% |
| | Improve_their_attitudes_toward_learning | 23 | 20.9% | 82.1% |
| Total | | 110 | 100.0% | 392.9% |

a. Dichotomy group tabulated at value 1.

24 (21.8%) of teachers think students working together in groups develops students’ critical thinking skills, 28 (25.5%) think it helps students exchange knowledge, 19 (17.3%) state it is an opportunity for students to share their experiences, 16 (14.5%) assume it increases students’ motivation, and 23 (20.9%) believe that it improves students’ attitudes toward learning.

Summary: teachers' responses to question '1.1 What do you understand about student learning through collaboration in small groups?' displayed that nearly all teachers have enough knowledge about students' learning through collaboration in small groups; they are also aware of the advantages of this method, and the issues that may suppress the advantages of this method.

Regarding the responses to the question '1.2 Do you think CL is an effective method for learning EFL?' Of all the respondents, 28 (100%), since they had experiences with the use of CL in teaching EFL, conceded its effectiveness for learning EFL.

Regarding the question "1.3 What are the goals students might achieve from working together in groups?" 28 (25.5%) of responses are for students working together in groups facilitating 'exchange knowledge', which is one of the primary uses and aims of practising CL in teaching.

So, teachers' responses for each of the above questions symbolize the teachers' familiarity with the use of CL in teaching and learning processes.

5.1.2 EFL University teachers' general viewpoint of using ICT in teaching and learning EFL.

5.1.2.1 Teachers make use of ICT in teaching EFL

The responses to the question '2.1 Do you make use of ICT for teaching EFL?' are presented in Table (18).

Table 18. Teachers' responses regarding the use of ICT in teaching EFL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | No | 2 | 7.1 | 7.1 | 7.1 |
| | Yes | 26 | 92.9 | 92.9 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

Based on teachers' responses, 2 (7.1%) of teachers do not use ICT in their teaching, while 26 (92.9%) teachers practice ICT in teaching EFL. This indicates that the majority of teachers use ICT in teaching; there are only a few teachers who do not employ it.

5.1.2.2 Teachers' viewpoints regarding whether ICT is a helpful tool for teaching EFL

In response to the question '2.2 Do you think ICT is a helpful tool for teaching EFL? How?' The teachers have two responses; the first one they answer with a *Yes* or *No* answer to specifically tell the researcher if they see ICT as a helpful tool for teaching EFL or not. In the second part of their answer, they explain why they think ICT is a helpful tool in teaching EFL and why not.

In the first part of their answers, 28 (100%) teachers admit the helpfulness of ICT for teaching EFL. (See Table (19)).

Table 19. Teacher's viewpoint concerning whether ICT is a helpful tool for teaching EFL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----|-----------|---------|---------------|--------------------|
| Valid | Yes | 28 | 100.0 | 100.0 | 100.0 |

In the second part of the teachers' responses, they clarify more. (See Tables (20. a.) and (21. b.)).

Table 20. a. Teachers' clarification regarding their viewpoint about the helpfulness of ICT as a tool for teaching EFL.

| Codes | Explanations |
|---|--|
| <p>T1, T2, T3, T4, T6, T7, T8, T9, T10, T11, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T25, T26, T27, T28.</p> | <p>Sure, teachers are using all the means of technology and are familiar with their advantages. They get the best of these tools for teaching.</p> <p>Sure, teachers will have more opportunities for practicing technology for teaching purposes and have the chance to present the material effectively.</p> <p>It makes teaching interesting, motivating and develops student autonomy.</p> <p>Yes, teachers can give different tasks to small groups, create competition among them, and encourage students to participate in discussions.</p> <p>Sure, it is. Nowadays, students can easily have access to communicative technologies; thus, we can direct them to take benefit from them.</p> <p>It is helpful for supplying instruction accordingly and providing learners with input-based knowledge.</p> <p>I use ICT partially. I use a mixed or blended type of teaching. When I use ICT, I mainly use it for uploading certain PPT slides as one cannot upload all lectures as a whole. I use it also to guide my learners on how to follow my teaching coursebook, especially when there are no classes, or I cannot meet them directly. I also use it to see my students' homework as there is not enough time to do them in classes.</p> <p>ICT is useful if it is used according to flipped classroom methods.</p> <p>Yes, it develops communication and collaboration among the teachers and students. It also helps teachers find teaching materials and deliver them more effectively.</p> <p>Yes, to some extent. It will be a great substitution for campus lecturing especially in facing an epidemic. What's more, it helps autonomous working and is more interesting than boring lectures.</p> <p>Yes, Nowadays, almost nothing can be fully accomplished without the use of technology. The teaching process is no exception. Besides, due to the pandemic, most of the classes were either recorded or turned into online sessions with students. Therefore, using technology became a must in the process of teaching/learning. It can help in so many different ways, such as</p> |

| | |
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| | <p>1. Recorded classes can be watched again and again.</p> <p>2. Using data shows and watching videos can expand the duration of remembering the information. It is said that 'seeing is believing'</p> <p>3. Technology motivates the students and also makes the life of the instructor easier.</p> <p>Absolutely. During this period of time when teaching on campus is under threat because of COVID-19, ICT is not important, but it is an inevitable part of the process.</p> <p>It facilitates and improves the quality of learning, makes learning fun, and things are imprinted in learners' minds, making them difficult to forget.</p> <p>Yes, because it allows the students to interact with each other more effectively and share their knowledge and skills.</p> <p>Yes, it fosters learning because showing is better than telling, ICT leads to increased student learning and improved teaching methods.</p> <p>Yes, nowadays it is easy to use information and communication technology to provide students with a variety of learning materials.</p> <p>Yes, ICT can be very motivating for students, e.g., showing a short video in class is a welcome change from a regular lesson for them.</p> <p>Yes, many different ways – presenting the texts, videos, pictures, playing recordings, and music. Not to mention also the testing and evaluation, distance learning/teaching methods, etc.</p> <p>Yes, opens a bunch of possibilities for finding, sharing, and communicating information.</p> <p>Yes, it enhances the scope of EFL learning.</p> <p>It definitely brings a new element to teaching.</p> <p>Yes, Motivation, interaction, availability of a wide range of resources, and working in ways students are familiar with in their lives outside of school.</p> <p>Discussions, use of English other than with the teacher, exchange of information, and working on the outcomes, support cooperation, acceptance, and respect apart from linguistic benefits.</p> <p>Yes, Easier when preparing audio-visual materials, and faster in gathering responses.</p> |
|--|---|

In Table (20), T1, T2, T3, T4, T6, T7, T8, T9, T10, T11, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T25, T26, T27, and T28 mention the various advantages of ICT which

provoke them to practice it in their teaching.

Table 21. b. Teachers' clarification regarding their viewpoint about the helpfulness of ICT as a tool for teaching EFL.

| Codes | Explanations |
|----------------------------------|---|
| <p>T5, T12, T13, T24.</p> | <p>It is helpful in a non-class environment. They would be able to collaborate, even if they are in different places. Students are not limited to time and place.</p> <p>Only for the listening part: PowerPoint is good in terms of general teaching. Using too much technology is misleading and distracting. There is no great language input from using technology.</p> <p>It's useful, but the lack of technical staff and issues with the net may be an obstacle to students' learning.</p> <p>ICT or technology is like any other tool that can be used by the teachers in class to support language learning, but it is not the technology itself, but it is how the tasks are designed around the technology to support students learning. Students can be introduced to the way how to use technology to support their learning. It's right that technology can do it by the instructions coming around the technology to support student learning.</p> |

In Table (21), although the teachers acknowledge the helpfulness of ICT for teaching EFL, they have a different response from the teachers in Table (20). For instance, T5 believes that ICT helps teach EFL when used in a non-class environment. He/She means it is unnecessary to frame the use of ICT only in class. It will also be helpful if teachers can use it outside the class, even if the learners are located in different locations and have different time zones. This signifies that with the use of technology/ICT, both teachers and students can continue teaching and learning outside the classroom.

Despite the fact that T12 limited the use of ICT for listening practice and mentioned that PPT is a good tool for teaching, he/she attracted our attention to the fact that "using too much technology is misleading and distracting". He/She also states, "there is no great language input from using technology". This means that the use of ICT in teaching is not always necessary. The teacher should know when to use ICT in teaching EFL.

T13 responded that it is clear that ICT is a helpful tool in teaching EFL, but "It is useful, but the lack of technical staff and issues with the net may be an obstacle to students' learning". Unfortunately, the lack of teachers' ICT competence, lack of ICT technician support, and lack

of internet in universities in Kurdistan specifically deprive teachers and students of taking advantage of ICT in teaching and learning.

T24 again asserts the benefits of ICT in teaching; however, he/she claims that "ICT or technology is like any other tool that can be used by the teachers in class to support language learning, but it is not the technology itself, but it is how the tasks are designed around the technology to support students learning".

This illustrates that it is undeniable that ICT is a valuable tool; it makes teaching much easier than before, but it is not a substitute for teachers. It is the teacher who effectively makes use of ICT.

5.1.2.3 The use of ICT and improving EFL teaching performance

The teachers responded to the question “2.3 Do you think the use of ICT has an impact on improving EFL teaching performance? How?” as the following.

Table 22. Teachers’ viewpoints concerning whether the use of ICT has an impact on improving EFL teaching performance.

| 2.3 Do you think the use of ICT has an impact on improving EFL teaching performance? How? | | | | | |
|---|-----|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | No | 4 | 14.3 | 14.3 | 14.3 |
| | Yes | 24 | 85.7 | 85.7 | 100.0 |
| Total | | 28 | 100.0 | 100.0 | |

4 (14.3%) of teachers think using ICT does not impact improving EFL teaching performance. In contrast, 24 (85.7%) think it impacts improving EFL teaching performance. For more detailed responses, see Table (22).

Table 23. a. Teachers’ clarification regarding their views on how ICT has an impact on improving EFL teaching performance.

| Codes | Explanations |
|---|--|
| T1, T2, T3, T4, T8, T9, T10, T14, T15, T16, T17, T18, T19, T20, T21, T22, T24, T25, T26, T27. | Certainly. It facilitates my teaching. Sure, with the use of ICT in teaching the students get familiar with a wide range of different vocabularies and ways of practicing. It makes teaching interesting, and motivating and develops student autonomy. Certainly, teachers can control the teaching process easily and |

| | |
|--|---|
| | <p>engage students by correcting their mistakes and giving alternatives.</p> <p>Yes, it is, specifically when the teachers make use of online and offline materials as supplement-driven, input-providing, motivational boosters, and instructional activities.</p> <p>Yes, it does. It helps to communicate with students when they are outside the same physical space of teaching (i.e., inside the classroom). Additionally, it enhances teaching abilities as it becomes a source and prompter for teachers when they are in need of knowledge on a specific subject.</p> <p>Yes. Teachers can deliver their teaching materials more effectively and create more opportunities for communication and collaboration.</p> <p>I believe it does. It shows a better version of the instructor in a way that they can vary in their materials and resources same as the teaching aids they use.</p> <p>Sure. We all agree on the fact that we are busier than ever. Students are able to set their own schedules so that they can still be part of the process. Yet so many students are not always able to be in class and even if they are in class, sometimes they are not able to concentrate due to the heavy burden on their shoulders. We can through ICT still keep going on teaching and learning effectively even outside the class.</p> <p>It fosters motivation and engagement and leads to learner-centred classes.</p> <p>Yes, because it increases student output and achievement.</p> <p>Yes, the technological revolution that is growing around us makes it an aspect which makes us take use of ICT in teaching EFL.</p> <p>Yes, it impacts the way teachers present teaching materials that engage students in class.</p> <p>Yes, it leads to teachers being more creative.</p> <p>Yes, wider and faster availability of materials.</p> <p>It is more authentic, has space for mistakes, has a safe environment, and everyone is engaged at the same time.</p> <p>Yes, definitely – you really cannot use the computer without knowing and learning English and I think that all teaching improves when the lecturer learns something new – e.g., using the computer.</p> <p>Yes, ICT tools help teachers in many ways: gamification – to increase motivation, to “play” with the language, ...; demonstration – modelling the language e.g., via YouTube; management – e.g., virtual classroom with all the homework, and sources in one place (e-learning systems) etc.</p> <p>Yes, because it is modern, helpful for students and something they</p> |
|--|---|

| | |
|--|--|
| | <p>mostly relate to as an important aspect of their life. Whatever is close to the students and you bring it to the class, I believe, it does have an impact on the quality of EFL teaching performance. Not only impact but POSITIVE impact.</p> <p>Yes, if used wisely and effectively, in a way that focuses directly on the learning objectives.</p> |
|--|--|

Twenty of the teachers (T1, T2, T3, T4, T8, T9, T10, T14, T15, T16, T17, T18, T19, T20, T21, T22, T24, T25, T26, and T27) respond how the use of ICT make ease their teaching and learning process, each of them has made clarification based on the way they make use of ICT in their teaching. Also, some of them mentioned how using ICT can engage the learners in learning and improve their learning achievements.

Table 24. b. Teachers' clarification regarding their views on to what extent ICT has an impact on improving EFL teaching performance.

| Codes | Explanations |
|--------------------------|--|
| T5, T6, T11, T12. | <p>Of course, it has an impact, but Not a very good one. For me, the teacher is the one who makes improvements, not ICT. ICT is only a tool used by a teacher.</p> <p>To some extent, it does. It makes their way of learning easier if they are not distracted by unnecessary things.</p> <p>If all the facilities are provided, yes. It can be used as a teaching aid and students can gain more information via ICT once they share their knowledge and experiences and have group discussions that might enhance their learning and motivate them to improve their critical thinking.</p> <p>Apart from PowerPoint, technology doesn't have a considerable impact on teaching performance.</p> |

T5, T6, T11, and T12 have positive responses about the impact of ICT on improving EFL teaching performance; nevertheless, they have more specifications about ICT's impact on teaching performance. For example, T5, although he/she stated that ICT impacts teaching performance, he/she thinks ICT does not make a very good impact or improvement. It is the teacher who improves, not the ICT; ICT is only an instructional tool used by the teacher, as a similar statement was mentioned by T24 earlier.

T6 reports to some extent (*Yes*) "if they are not distracted with unnecessary things." This fact I think the majority of teachers suffer when they use ICT during their teaching. To illustrate, the company's advertisement is one of the distracting issues that distract any users of ICT.

Sometimes since some other websites or social media are easily affordable for the learners in the technological system of the university, some learners make themselves busy with them rather than completing the tasks through ICT use.

T11 admits the impact of ICT on teaching performance when all the facilities for both teachers and learners are provided. This is a fact that teachers cannot make any positive change or enhancement in teaching and learning if adequate facilities are not available for them, including the students.

Although T12 admits the ICT's impact on improving teaching performance, he/she thinks that "apart from PowerPoint, technology does not have a considerable impact on teaching performance". Based on the demographic data, T12 mentioned that he/she has never participated in ICT and CL training courses, and regarding the self-assessing ICT competency level, he/she believes that he/she is 'Not very skilled'. With all respect to T12, the lack of knowledge about the use of ICT in teaching may have made T12 have this viewpoint.

Table 25. Teachers' clarification regarding their views on why ICT has not an impact on improving EFL teaching performance.

| Codes | Explanations |
|--------------------|---|
| T7, T13, T23, T28. | <p>Generally, no.</p> <p>I don't think so due to the lack of facilities of technology.</p> <p>No, it depends. I do not know.</p> <p>No, A good teacher is a good teacher, you do not need ICT to be an efficient, motivating teacher.</p> |

T7, T13, T23, and T28 think ICT does not improve EFL teaching performance. Some of the teachers within their responses provide a clue as to why they have this idea about the impact of ICT on teaching performance. To illustrate, T13 says (*No*) because he/she experiences a lack of facilities or technology that prevent him/her from using ICT in teaching. T23 responds (*No*) because he/she does not know or has little ICT experience in teaching. T28 has chosen the (*No*) answer because he/she assumes a good teacher does not need ICT to be effective in teaching.

Summary: to get the general viewpoint of teachers on using ICT and its impacts on teaching and learning, the researcher has asked the university teachers the questions (2.1-2.3).

In their responses to the question '2.1 Do you make use of ICT for teaching EFL?' 26 (92.9%) university teachers claim they use ICT during their teaching. This is a good number of respondents, out of 28 respondents, to admit the ICT use in their teaching. This number of responses helps the researcher to expect the respondents' familiarity with ICT use in teaching.

In the first part of their answers to the question '2.2 Do you think ICT is a helpful tool for teaching EFL? How?' 28 (100%) teachers acknowledge the helpfulness of ICT as a tool for teaching EFL. In the second part of their answer to this question, teachers again confirm ICT's benefits for teaching EFL. However, they have various clarifications about the usefulness of ICT in teaching, and a few of them either limit its benefits or mention the issues that curtail its uses, or they assert that it is only a tool that does not substitute teachers, which is an undeniable fact. Hence, the positive responses of teachers to this question mean ICT is a helpful tool for teachers while teaching EFL.

In the responses to question "2.3 Do you think the use of ICT has an impact on improving EFL teaching performance? How?" 4 (14.3%) of teachers say 'No', whereas 24 (85.7%) of them believe 'Yes' ICT has an impact on improving EFL teaching performance. 20 of 24 (85.7%) teachers clearly presented the good uses of ICT in teaching and learning and its effects on boosting teaching performance and students' achievement. Otherwise, 4 of 24 (85.7%) teachers who have chosen the 'Yes' response in the first segment of answers have different perceptions about the influence of ICT on teaching performance. For instance, T5 thinks it has an impact but is not very effective, and he/she believes that the teacher makes changes, not ICT. ICT is only a tool. T6 assumes ICT, to some extent, has an impact "if they are not distracted with unnecessary things". In this context, 'unnecessary things' indicate the factors that divert the student's attention due to ICT use rather than focusing on completing the task.

Moreover, T11 claims the positive impact of ICT on teaching performance unless the ICT facilities for both teachers and learners are available. While T12 sees that "apart from PowerPoint, technology does not have a considerable impact on teaching performance". In contrast, the four teachers, T7, T13, T23, and T28, who have chosen the 'No' response, do think ICT has an impact on improving teaching performance, whether due to lack of facilities or they think good teachers do not need ICT to be efficient or motivated in teaching. So, based on the shared perception of most teachers, it can be concluded that ICT as an instruction tool of

teaching could make changes in teaching performance, but still, it is irrefutable that there are factors as aforementioned ones, by T6 and T11, may lessen or curb the effectiveness of ICT on teaching performance.

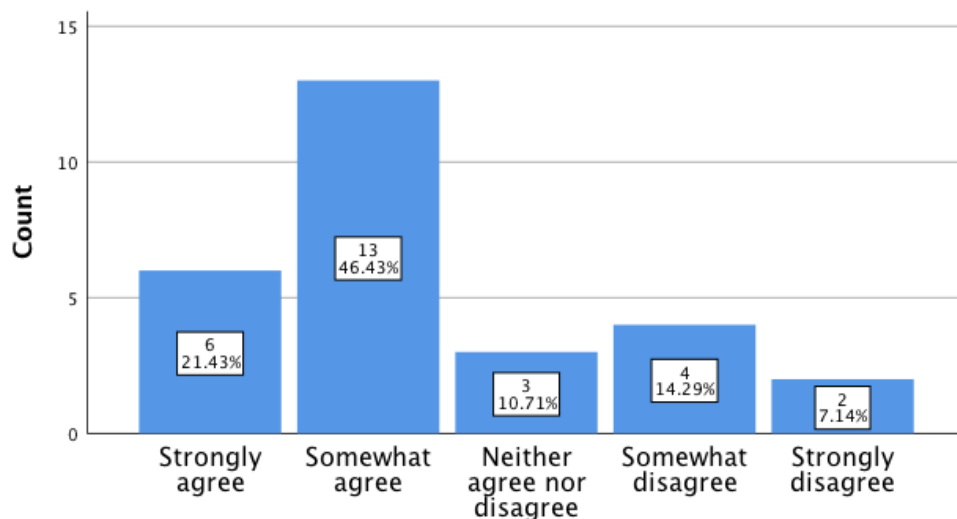
5.1.3 Impacts of using ICT for CL in teaching EFL

To answer the first research question (*What are the impacts of using ICT as a tool for CL to improve EFL teaching?*), the researcher directs some statements and asks the teachers some questions (3.1 - 3.6).

5.1.3.1 ICT is a useful tool to be used for CL

The teachers' responses to the question of to what extent they agree or disagree with this statement "3.1 ICT is a useful tool to be used for CL" is displayed in the following Graph.

Graph 1. ICT is a useful tool to be used for CL.



3.1 ICT is a useful tool to be used for CL.

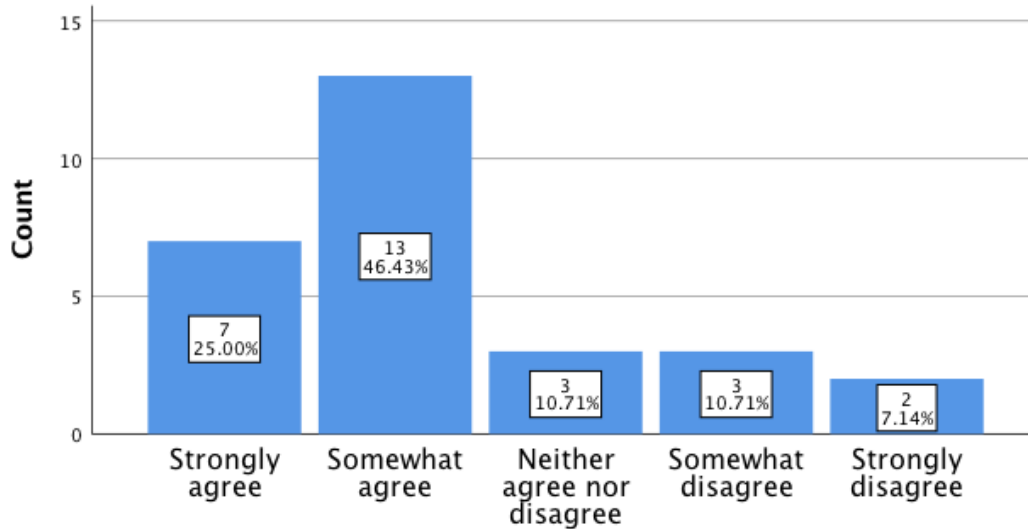
6 (21.43%) of teachers strongly agree (SA), 13 (46.43%) of them somewhat agree (SWA), 3 (10.71%) of them neither agree nor disagree (NANDA), 4 (14.29%) of them somewhat disagree (SWDA), and 2 (7.14%) of them strongly disagree (SDA). According to the teachers' responses, the majority of them 13 (46.43%) teachers SWA ICT is a useful tool for CL, and the second most responses are for SA 6 (21.43%).

5.1.3.2 Teachers can make use of ICT features for CL in teaching EFL

The responses to the statement "3.2 Teachers can make use of ICT features for CL in teaching EFL". 7 (25%) of respondents were SA, 13 (46.43%) of them SWA, 3 (10.71%) of them NANDA, and 2 (7.14%) were SDA. Again, the majority of the respondents are 13 (46.43%) SWA, and the second most respondents are 7 (25%) SA with the statement. See the

following graph:

Graph 2. Teachers can make use of ICT features for CL in teaching EFL.

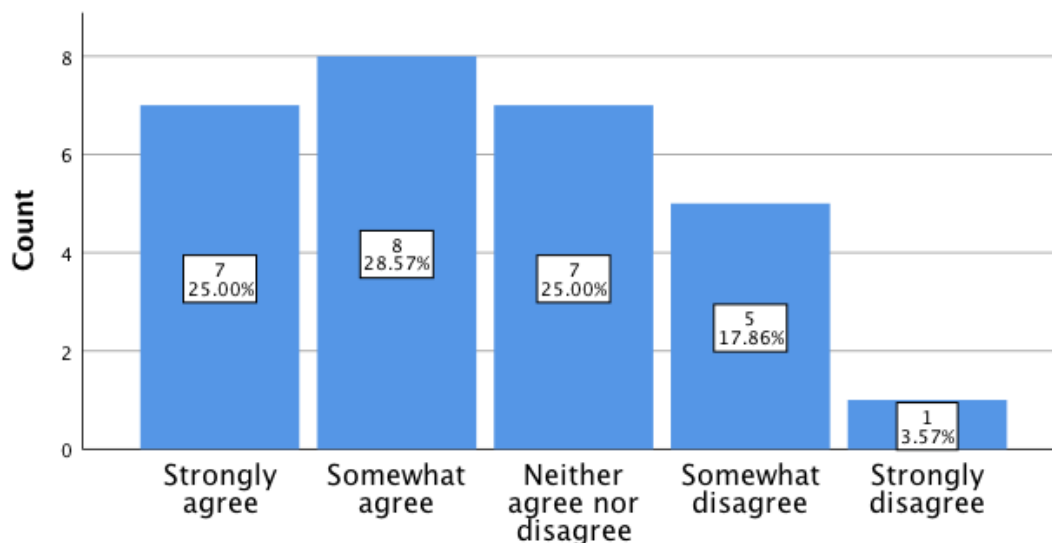


3.2 Teachers can make use of ICT features for CL in teaching EFL.

5.1.3.3 With the use of ICTs teachers can provide a CL environment for learners.

The interviewees responded to the statement "3.3 With the use of ICTs as a teacher, I can provide a CL environment for learners", 7 (25%) of interviewees SA, 8 (28.57%) of them SWA, 7 (25%) of them NANDA, and 1 (3.57%) SDA. In line with the interviewees' responses, 8 (28.57%) SWA comes as the first top, and 7 (25%) SA and NANDA come as the second top answer for this statement. See Graph (3).

Graph 3. With the use of ICTs teachers can provide a CL environment for learners.



3.3 With the use of ICTs as a teacher, I can provide a CL environment for learners.

5.1.3.4 Aims behind using ICT for CL in EFL teaching

With the question “3.4 What is the aim behind using ICT for CL in EFL teaching?” the respondents have given a multiple choice to select all that apply to answering the question. For more detail, see the following Table (26).

Table 26. the aim behind using ICT for CL in EFL teaching.

| | | Responses | | Percent of Cases |
|--|---|------------|---------------|------------------|
| | | N | Percent | |
| Aim of using ICT for CL in EFL teaching ^a | It_increases_my_authority_and_power_in_class | 5 | 2.9% | 17.9% |
| | It_makes_a_class_collaborative | 20 | 11.5% | 71.4% |
| | It_increases_students_cognitive_competence_and_creativity | 17 | 9.8% | 60.7% |
| | It_makes_students_independent_and_confident | 19 | 10.9% | 67.9% |
| | facilitates_teacher_student_student_relationship | 19 | 10.9% | 67.9% |
| | It_facilitates_teaching | 19 | 10.9% | 67.9% |
| | It_attracts_the_students_to_the_lesson | 20 | 11.5% | 71.4% |
| | It_saves_effort_and_time_of_the_lesson | 22 | 12.6% | 78.6% |
| | It_helps_to_monitor_and_guide_students_learning | 17 | 9.8% | 60.7% |
| | It_helps_me_in_teaching_preparation_provide_feedback | 16 | 9.2% | 57.1% |
| | Total | 174 | 100.0% | 621.4% |

a. Dichotomy group tabulated at value 1.

5 (2.9%) respondents have chosen ‘It increases my authority and power in class’; 20 (11.5%) of them have chosen ‘It makes a class collaborative’; 17 (9.8%) of them have chosen ‘It increases student’s cognitive competence and creativity’, 19 (10.9%) of them have chosen ‘It makes students independent and confident’, 19 (10.9%) of them have chosen ‘It facilitates teacher-student, and student-student relationship in class’, 19 (10.9%) of them have chosen ‘It facilitates teaching’, 20 (11.5%) of them have chosen ‘It attracts the students to the lesson’, 22 (12.6%) of them have chosen ‘It saves effort and time of the lesson’, 17 (9.8%) of them have chosen ‘It helps to monitor and guide student’s learning’, 16 (9.2%) of them have chosen ‘It helps me in teaching preparation, provide feedback’.

In most of the responses, 22 (12.6%) were given to ‘It saves effort and time of the lesson’, which indicates a positive impact of ICT for CL in teaching EFL. The second most response was 20 (11.5%) for both ‘It makes a class collaborative’ and ‘It attracts the students to the lesson aims. The former represents the teachers’ response to the positive use of ICT in CL; the latter represents the advantages of ICT in CL to attract the students’ attention to learning. The third most responses, 19 (10.9%), were given to each of ‘It makes students independent and confident’, ‘It facilitates teacher-student and student-student relationship in class’, and ‘It facilitates teaching’. Each of the selected choices by the respondents again signifies the benefit of ICT use in CL for teaching EFL.

5.1.3.5 The most popular software teachers use for CL in an EFL teaching session

Table (27) displays the teachers’ responses to the question “3.5 What is/are the most popular software you use for CL in an EFL teaching session?”. The software presented in the Table is the software that the teachers mentioned that they use most. Google Classroom comes in the first software teachers used, then ZOOM, and later Moodle. While four teachers (T4, T17, T21, and T28) do not use ICT in CL, they did not mention any software. See Table (28) for more details.

Table 27. most popular software you use for CL in an EFL teaching session.

3.5 What are the most popular software you use for CL in EFL teaching session?

| Codes | Moodle | Google Classroom | Zoom | Telegram | Viber | WhatsApp | Social media | YouTube videos | Google drive | Google meet | Google slides | Google Docs | Google form | Microsoft PowerPoint | Canvas | Microsoft team | WebEx | Email | None |
|-------|--------|------------------|------|----------|-------|----------|--------------|----------------|--------------|-------------|---------------|-------------|-------------|----------------------|--------|----------------|-------|-------|------|
| T1 | ✓ | | | | | | | | | | | | | | | | | | |
| T2 | ✓ | | | ✓ | ✓ | | ✓ | | | | | | | | | | | | |
| T3 | ✓ | | ✓ | | | | | ✓ | | | | | | | | | | | |
| T4 | | | | | | | | | | | | | | | | | | | ✓ |
| T5 | | | ✓ | | | ✓ | | | | ✓ | | | | | | | | | |
| T6 | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | | ✓ | ✓ | | | | | | |
| T7 | | ✓ | | | | | | | | | | | | | | | | | |
| T8 | | | ✓ | | | | | | | | ✓ | | | ✓ | | | | | |
| T9 | | ✓ | | | | | | | | | | | | | ✓ | | | | |
| T10 | | ✓ | | | | | | | | | | | | | | | | | |
| T11 | | ✓ | | | | | | | | | ✓ | ✓ | | | | | | | |
| T12 | | | | | | | | | | | | | | ✓ | | | | | |
| T13 | ✓ | | | | | ✓ | | | | | | | | | | | | | |
| T14 | | ✓ | | | | | | | | | | | | | | | | | |
| T15 | | | ✓ | | | | | | | | | | | ✓ | | | | | |
| T16 | | ✓ | ✓ | | | | | | | | | | | | | | ✓ | | |
| T17 | | | | | | | | | | | | | | | | | | | ✓ |
| T18 | | ✓ | | | | | | | | | | ✓ | | | | | | | |
| T19 | | ✓ | | | | | | | | | | | | | | | | | |
| T20 | | ✓ | | | | | | | | | | | | | | | | ✓ | |
| T21 | | | | | | | | | | | | | | | | | | | ✓ |
| T22 | | ✓ | | | | | | ✓ | | | | | | | | | | | |
| T23 | | ✓ | | | | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | |
| T24 | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | |
| T25 | | | ✓ | | | | | | | | | | | | | | | | |
| T26 | ✓ | | | | | | | | | | | ✓ | | | | | | | |
| T27 | | | | | | | | | | | | | | | | ✓ | | | |
| T28 | | | | | | | | | | | | | | | | | | | ✓ |
| Total | 7 | 13 | 8 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 6 | 1 | 3 | 1 | 1 | 1 | 1 | 4 |

5.1.3.6 Reasons behind using some software most for CL

The university interviewees' responses to the query “3.6 *What makes this software to be used most for CL?*” is presented in Table (28):

Table 28. reasons behind using some software most for CL.

| Codes | Explanations |
|---|--|
| <p>T1, T2, T3, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26, T27.</p> | <p>They are easily managed.</p> <p>It provides the students with the actual experience of native speakers' language usage</p> <p>YouTube, Moodle and Zoom are all easy to use and easily accessible.</p> <p>Easy to use, free of charge, easy to share files with the students, and easy to make groups in the programs.</p> <p>Easy to be used by both the students and the teachers. Some of them are free and the others are purchased by the university.</p> <p>It is made obligatory by the minister of higher education/University.</p> <p>Through using this software, I allow students to be in groups and then group leaders present the slides one by one. They will be shared with the slides in advance. And they read, discuss, comment, and finally argue about.</p> <p>The online discussions, comment on the questions raised by both the teacher and the classmates.</p> <p>They are user-friendly, possess easy navigation tools, and most importantly my students know how to use them.</p> <p>Students' knowledge about it and satisfaction with using it.</p> <p>Facilitates teacher's tasks, is good for students with different learning styles, and helps teachers to teach one point at a time.</p> <p>It helps students' learning and interaction.</p> <p>I mainly use Google Classroom because it helps me keep in touch with my students, share information, assess them and give them feedback and share their marks in private.</p> <p>Students spend less money as long as they can be in class wherever they are. They are able to write comments in the comment section anytime during the class. Based on my experience, they do not shy that much and they express whatever they want to say.</p> <p>It is easy to use, free, and allows quick exchange of documents and presentations, as well as assessment of students' work.</p> <p>It offers numerous productivity tools that can be freely accessed on the internet.</p> <p>It is user-friendly and available for both teachers and students.</p> <p>The software is open-source learners can use them easier than others</p> |

| | |
|--|---|
| | <p>since they are familiar with them.</p> <p>They are easy to manage by both teachers and students.</p> <p>As for me – it's simplicity to establish and use and maintain.</p> <p>The University provided some software to be used which is another reason that we are conducting, or we can say we are using this software during our teaching.</p> <p>It is a free source.</p> <p>Students can share their ideas synchronously as well as asynchronously.</p> <p>Easy to access.</p> |
|--|---|

T1, T2, T3, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26, and T27 are all talked about the positive points or use of the previously mentioned software that has made them practice them in CL, including a few of them mentioned the reason behind using the software is, it is the provided software by the university, and it is required to be used during teaching and learning process.

However, T4, T17, T21, and T28 mentioned that they do not use ICT in CL. See Table (29).

Table 29. reasons behind not using ICT software for CL.

| Codes | Explanations |
|-------------------------------|---|
| T4, T17, T21, T28. | <p>Never used ICT in CL.</p> <p>I do not use it.</p> <p>I have never used ICT in CL.</p> <p>I am not a user of ICT in CL.</p> |

Summary: in responding to the first research question (*What are the impacts of using ICT as a tool for CL to improve EFL teaching?*), answers for statements and questions (3.1 - 3.6) have been achieved.

13 (46.43%) of EFL teachers' responses to the statement "*3.1 ICT is a useful tool to be used for CL*" is SWA and the second most teachers are 6 (21.43%) SA. So, we can get to the point that most EFL teachers see ICT as a valuable tool for CL classes.

Also, in the responses to the statement "*3.2 Teachers can make use of ICT features for CL in teaching EFL,*" 13 (46.43%) of teachers SWA and the second most responses, 7 (25%),

is SA. In line with the teachers' responses to this statement, again, most teachers admit that they can use ICT features for CL in teaching EFL.

Regarding the statement "*3.3 With the use of ICTs as a teacher, I can provide a CL environment for learners*", 8 (28.57%) of teachers SWA and 7 (25%) of them SA. According to the responses, more than half of the teachers agree with using ICTs; they can provide a CL environment for learners.

Responses for the question "*3.4 What is the aim behind using ICT for CL in EFL teaching?*" 22 (12.6%) of teachers have chosen 'It saves effort and time of the lesson', which is a good use of ICT in teaching and learning in general and in CL in particular. The second most response was 20 (11.5%) for both 'It makes a class collaborative' and 'It attracts the students to the lesson's aims'. The former response is proof of the positive use of ICT in CL that makes learning more collaborative, and the latter indicates another positive use of ICT in CL which engages learners in learning and achieves the lesson's aims. The third most responses, 19 (10.9%), were for each 'It makes students independent and confident', 'It facilitates teacher-student and student-student relationship in class', and 'It facilitates teaching'. Each respondent's choices demonstrate the value of ICT with CL for EFL instruction. For instance, ICT use in CL helps students' independence and confidentiality, improves teacher-student and student-student relationships, and assists teaching. Thus, the teachers' responses to this question again signify the constructive use of ICT in CL for teaching EFL.

"*3.5 What is/are the most popular software you use for CL in an EFL teaching session?*" According to the teachers' responses to the previous question, first Google Classroom, then ZOOM, and later Moodle comes as teachers' most used software for CL. At the same time (T4, T17, T21, and T28) did not mention any software since they claim they do not adopt ICT in CL. The abovementioned software is among the mentioned software in the literature review (Chapter 3) come as software due to the various features that teachers can make use of for CL.

In response to the question "*3.6 What makes this software to be used most commonly for CL?*" Most of the teachers declare the reasons behind practising the distinct software for CL, which is their positive uses for CL, and some of them, despite the good uses of them, are the software that was recommended by the university or faculty to be used throughout the teaching and learning process.

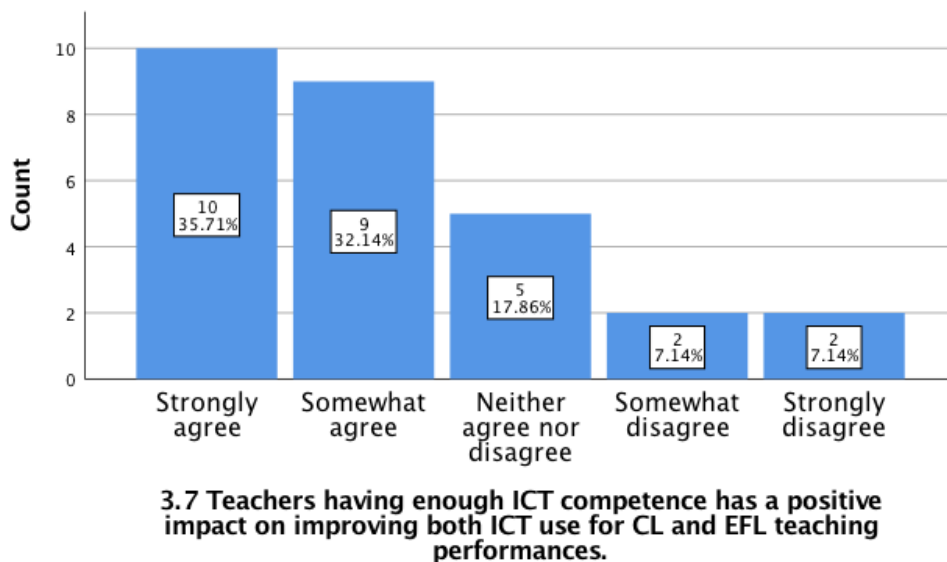
All in all, based on the teachers' responses to questions (3.1 - 3.6) we can conclude that ICT as a tool for CL has a positive impact on CL and enhances EFL teaching, which is achieved in responses to the first research question (*What are the impacts of using ICT as a tool for CL*

to improve EFL teaching?).

5.1.3.7 Teachers having enough ICT competence has a positive impact on improving both ICT use for CL and EFL teaching performances

To answer the first hypothesis (H1. In University Teachers' opinion, EFL teaching improves when teachers have enough ICT competence to use ICT as a tool for CL.), the statement (3.7 Teachers having enough ICT competence has a positive impact on improving both ICT use for CL and EFL teaching performances) directed to the university EFL teachers to know to what extent do they agree with.

Graph 4. Teachers having enough ICT competence improves both ICT use for CL and EFL teaching performances.

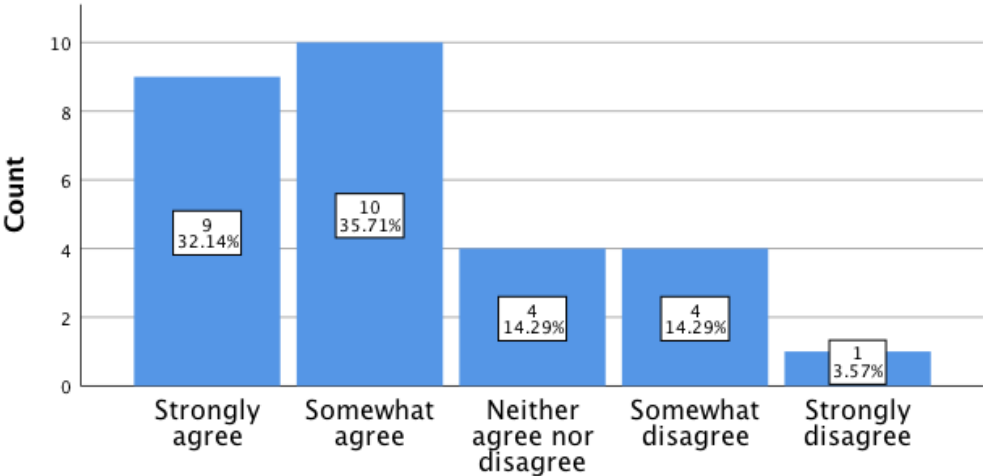


10 (35.71%) of university EFL teachers are SA, 9 (32.14%) of them SWA, 5 (17.86%) of them NANDA, while 2 (7.14%) of them SWDA, and 2 (7.14%) of them SDA. So, we can say the majority of teachers agree with this statement.

5.1.3.8 Teachers having enough access to ICT hardware and software has a positive impact on improving both ICT use for CL and EFL teaching performances

In response to the second hypothesis (H2. In University Teachers' opinion, EFL teaching improves when teachers have enough access to ICT hardware and software to use ICT as a tool for CL), the teachers respond to the statement (3.8 Teachers having enough access to ICT hardware and software has a positive impact on improving both ICT use for CL and EFL teaching performances) see the Graph (5) for more information.

Graph 5. Teachers having enough access to ICT hardware and software improves both ICT use for CL and EFL teaching performances.



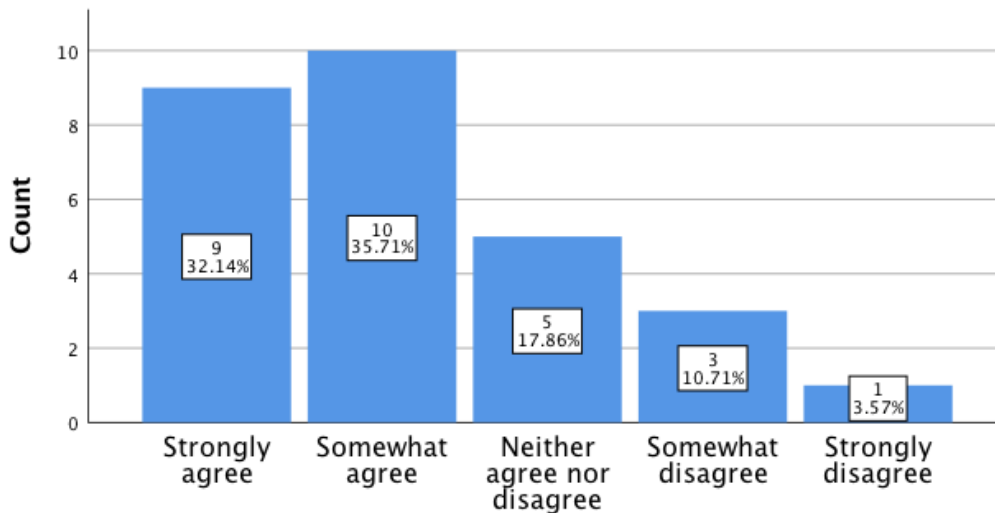
3.8 Teachers having enough access to ICT hardware and software has a positive impact on improving both ICT use for CL and EFL teaching performances.

9 (32.14%) of teachers SA, 10 (35.71%) of them SWA, 4 (14.29%) of them NANA, 4 (14.29%) of them SWDA, and 1 (3.57%) of them SDA. In line with their responses, most teachers agree that having enough access to ICT hardware and software has a positive impact on improving ICT use for CL and EFL teaching performances.

5.1.3.9 Teachers having enough confidence has a positive impact on improving both ICT use for CL and EFL teaching performances

In order to answer the third hypothesis (H.3 In University Teachers' opinion, EFL teaching improves when teachers have enough confidence to use ICT as a tool for CL.), the respondents' responses to the statement (3.9 Teachers having enough confidence has a positive impact on improving both ICT use for CL and EFL teaching performances).

Graph 6. Teachers having enough confidence improves both ICT use for CL and EFL teaching performances.



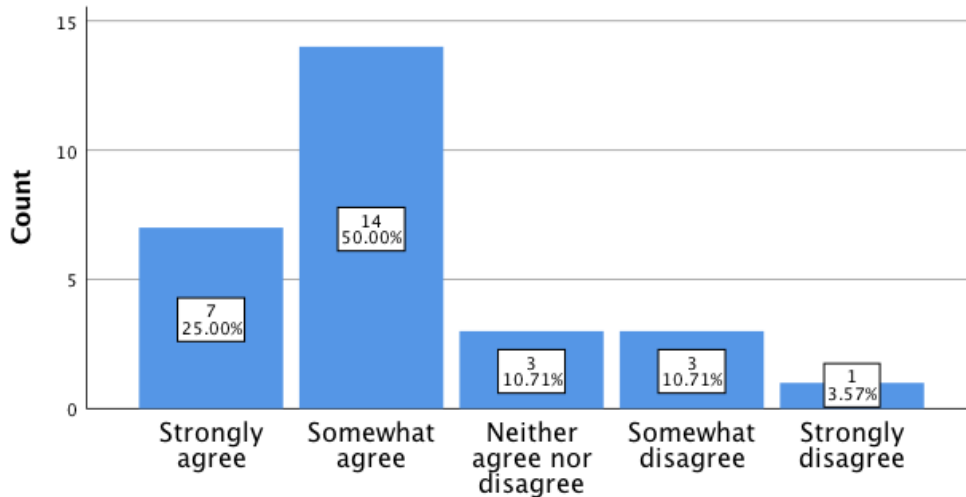
3.9 Teachers having enough confidence has a positive impact on improving both ICT use for CL and EFL teaching performances.

9 (32.14%) of respondents SA, 10 (35.71%) of them SWA, 5 (17.86%) of them NANA, 3 (10.71%) of them SWDA, 1 (3.57%) of them SDA. Hence, most of the respondents agree with the statement that teachers’ having enough confidence has a positive impact on improving both ICT use for CL and EFL teaching performances.

5.1.3.10 Teachers not having technophobia has a positive impact on improving both ICT use for CL and EFL teaching performances

To achieve the responses to the fourth hypothesis (H4. In University Teachers' opinion, EFL teaching improves when teachers do not have technophobia toward using ICT as a tool for CL.), the teachers answered to the statement (3.10 Teachers not having technophobia has a positive impact on improving both ICT use for CL and EFL teaching performances).

Graph 7. Teachers not having technophobia improves both ICT use for CL and EFL teaching performances.



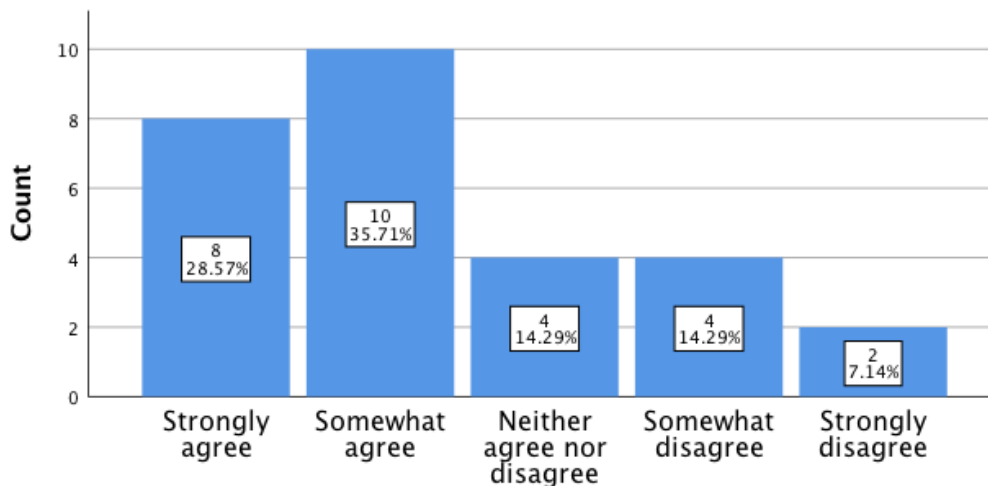
3.10 Teachers not having technophobia has a positive impact on improving both ICT use for CL and EFL teaching performances.

7 (25%) of EFL teachers SA, 14 (50%) of them SWA, 3 (10.71%) of them NANDA, 3 (10.71%) of them SWDA, and 1 (3.57%) of them SDA. Thus, again, most teachers agree that the lack of teachers' technophobia has a positive impact on improving ICT use for CL and EFL teaching performances.

5.1.3.11 Teachers not having a negative attitude toward the use of ICT has a positive impact on improving both ICT use for CL and EFL teaching performances

Regarding the fifth hypothesis (H5. In University Teachers' opinion, EFL teaching improves when teachers do not have a negative attitude toward the use of ICT in his/her teaching as a tool for CL), teachers have been asked to respond to the statement (3.11 Teachers not having a negative attitude toward the use of ICT has a positive impact on improving both ICT use for CL and EFL teaching performances).

Graph 8. Teachers not having a negative attitude toward the use of ICT improves both ICT use for CL and EFL teaching performances.



3.11 Teachers not having a negative attitude toward the use of ICT has a positive impact on improving both ICT use for CL and EFL teaching performances.

8 (28.57%) of teachers SA, 10 (35.71%) of them SWA, 4 (14.29%) of them NANDA, 4 (14.29%) of them SWDA, and 2 (7.14%) of them SDA. Accordingly, the teachers' responses indicate that most of them agree that teachers' not having a negative attitude toward the use of ICT has a positive impact on improving both ICT use for CL and EFL teaching performances.

Summary: For the sake of responding to hypotheses 1-5, the teachers have been asked the statements (3.7-3.11).

According to the teachers' responses to the statement (3.7 Teachers having enough ICT competence has a positive impact on improving both ICT use for CL and EFL teaching performances), 10 (35.71%) of EFL university teachers are SA, 9 (32.14%) of them SWA. So, this means 19 teachers out of 28 agree with the first hypothesis that EFL teaching improves when teachers have enough ICT competence to use ICT as a tool for CL.

In their response to the statement (3.8 Teachers having enough access to ICT hardware and software has a positive impact on improving both ICT use for CL and EFL teaching performances) 9 (32.14%) of university teachers SA, 10 (35.71%) of them SWA, which indicates 19 teachers out of 28 agree with the second hypothesis that is EFL teaching improves when teachers have enough access to ICT hardware and software to use ICT as a tool for CL.

Regarding their answer to the statement (3.9 Teachers having enough confidence has a positive impact on improving both ICT use for CL and EFL teaching performances), 9 (32.14%) of respondents SA, 10 (35.71%) of them SWA. Again, this implies that 19 out of 28 teachers

agree with the third hypothesis: that EFL teaching improves when teachers have enough confidence to use ICT as a tool for CL.

In line with their responses to the statement (3.10 Teachers not having technophobia has a positive impact on improving both ICT use for CL and EFL teaching performances), 7 (25%) of the EFL university teachers SA, 14 (50%) of them SWA. Therefore, most teachers agree that EFL teaching improves when teachers do not have technophobia toward using ICT as a tool for CL.

Results of the responses to the statement (3.11 Teachers not having a negative attitude toward the use of ICT has a positive impact on improving both ICT use for CL and EFL teaching performances) present that 8 (28.57%) of teachers SA, 10 (35.71%) of them SWA. Thus, 18 out of 28 teachers agree that EFL teaching improves when teachers do not have a negative attitude toward the use of ICT in his/her teaching as a tool for CL.

So, based on the responses to each aforementioned statement, we can conclude that mainly the teachers agree with the statement (3.7-3.11), which corresponds to (H1, H2, H3, H4, and H5).

5.1.4 Impacts of using ICT as a tool for CL to improve EFL learning

In this subsection, the teachers' responses to statements and questions (4.1- 4.13) are analyzed to respond to the second research question (*What are the impacts of using ICT as a tool for CL to improve EFL learning?*).

5.1.4.1 ICT is a suitable tool for CL to improve student's EFL learning

In their response to the question (4.1 Do you think ICT is a suitable tool for CL to improve students' EFL learning? Please explain it), 3 (10.7%) of EFL university teachers think ICT is not a suitable tool for CL to improve student's EFL learning, in contrast, 25 (89.3%) of them believe that ICT is a suitable tool for CL to improve student's EFL learning. See Table (30).

Table 30. ICT is a suitable tool for CL to improve students' EFL learning.

4.1 Do you think ICT is a suitable tool for CL to improve students' EFL learning? Please explain it.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | No | 3 | 10.7 | 10.7 | 10.7 |
| | Yes | 25 | 89.3 | 89.3 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

Teachers have provided more explanations to make clear why they think or do not think ICT is a suitable tool for CL to improve students' EFL learning. See the following Tables (32-34) for more information.

Table 31. Teachers' viewpoints on how ICT is a suitable tool for CL to improve students' EFL learning.

| Codes | Explanations |
|---|---|
| T1, T3, T4, T6, T8, T9, T10, T12, T14, T15, T16, T17, T18, T19, T22. | <p>Sure, e.g., working with dictionaries or corpora is a very good example of autonomous learning that improves achieved language level.</p> <p>They share ideas and learn from each other.</p> <p>Sure, nowadays students use technology a lot and have access to various websites. So, they can use them for exchanging information and communication in the target language.</p> <p>It's helpful I believe. It helps the students learn better and participate more.</p> <p>ICT is fitted with the advancement of students' EFL learning as it empowers their skills and experiential backgrounds.</p> <p>Yes, to some extent. Students who have the capability of deploying ICT are better qualified to improve their language.</p> <p>I believe that ICT is a suitable tool for CL to improve students' EFL learning. ICT tools provide learners with a wide range of English language learning materials that develop their language skills. Additionally, they create suitable opportunities for interaction and collaboration among themselves.</p> <p>It can be useful for homework and outside-class activities.</p> <p>Yes. ICT could simply fill in the gap that teachers can't fill in alone. In EFL classes, we have to let the students get involved actively in the class. To do so, we will need to create an English (for instance) environment. Therefore, using ICT can make that happen.</p> <p>It absolutely does. As long as they are not shy, as long as they feel comfortable, then the CL always goes higher.</p> <p>Yes. As I explained, it allows a quick exchange of documents and</p> |

| | |
|--|--|
| | <p>presentations.</p> <p>Sure, because it leads to more student self-confidence, self-esteem and helps them share their knowledge with each other.</p> <p>Well, to be honest, I think that ICT is a suitable tool to improve learning a foreign language because it improves skills and gives insight to communicate with native speakers of the language.</p> <p>Students can work collaboratively when they reach out to each other by using ICT tools.</p> <p>Yes, ICT is an inevitable part of our lives, therefore in EFL learning it can become an effective tool for the development of language skills and strategies.</p> |
|--|--|

T1, T3, T4, T6, T8, T9, T10, T12, T14, T15, T16, T17, T18, T19, and T22 clearly presented the appropriate uses of ICT in CL for improving EFL learners' learning.

Table 32. Teachers' exceptions for the uses of ICT in CL for improving EFL learning.

| Codes | Explanations |
|---|---|
| <p>T2, T5, T11, T13, T21, T23, T24, T25, T26, T28.</p> | <p>Suitable in a non-classroom environment only. Since nothing would be better than a teacher engaging the students in the classroom.</p> <p>To some extent Yes. Or it is supposed to be like that though it is not like that in reality. Due to these barriers that you have mentioned here.</p> <p>I think it's suitable but some issues regarding technology will be an obstacle to learning. That's why blended learning will be a gate for students learning because if we focus on virtual classrooms only, the students will not get benefits due to inferior backgrounds.</p> <p>Yes, but it is the use you make of ICT.</p> <p>Yes, it is useful but, in the classrooms, I have used there is no ICT available for students, just for the teacher at the teacher's desk.</p> <p>I think it may be, however, it really depends on the teacher and their attitude to ICT. I think it is still possible (even now) to teach without ICT.</p> <p>If it's justified methodologically, Yes, it depends on teachers how skilful are they using.</p> <p>I would like to answer both Yes and No. Personally, I think it is rather a mixture of approaches, methods, strategies and technologies that improve learning EFL, not necessarily only ICT. But Yes, it definitely does contribute positively in case it is used wisely, well and with well-structured aims.</p> <p>Sure, I believe it is suitable if there will be enough available ICT devices for both teachers and students.</p> |

| | |
|--|---|
| | Yes, but up to the point. First of all, you would need an ICT classroom to do this, which is not so realistic in most Universities. |
|--|---|

T2, T5, T11, T13, T21, T23, T24, T25, T26, and T28, despite they are having ‘Yes’es for the positives of ICT in CL for improving EFL learners’ learning, either specify the uses of ICT in CL for improving EFL learning, or they express exceptions for its uses.

Table 33. Teachers’ viewpoints concerning ICT which is not a suitable tool for CL to improve students’ EFL learning.

| Codes | Explanations |
|----------------------|--|
| T7, T20, T27. | <p>No, I don’t think so. since most of the learners do not have access to the internet in my area and as I see they do not like to be involved in any of the ICT teaching or learning sites provided for them.</p> <p>Not necessarily, it depends on the teacher as well as their students. Willing to incorporate ICT in CL for improving EFL learning or not.</p> <p>Somewhat No, it is not good to overestimate ICT as a tool for cooperative learning, because I believe what improves students’ learning is the teacher's choice of techniques of teaching, not a tool.</p> |

T7, T20, and T27 do not think ICT is suitable for CL to improve students’ EFL learning. For instance, due to one of the ICT barriers, which is lack of access to the Internet, T7 says No, because he/she experienced that his/her learners are demotivated to use teaching or learning sites since they do not access the Internet. In addition, T20 believes “it depends on the teacher as well as their students” to what extent they are willing to use ICT in CL for improving learning EFL. T27 has Somewhat No response because he/she considers that “it is not good to overestimate ICT as a tool for cooperative learning”. Since he/she believes it is a teacher who makes changes and improvements in learning, not a tool (ICT).

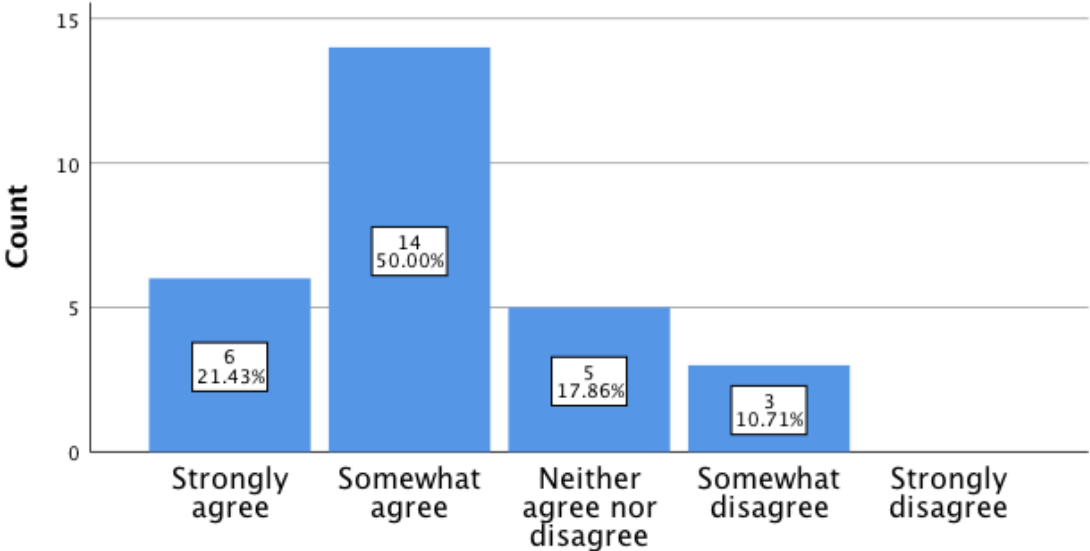
For the sake of achieving more data regarding the impacts of ICT in CL for improving EFL learning, the teachers were asked the statements (4.2-4.13) to see to what extent they agree or disagree.

5.1.4.2 ICTs have enough features to make collaboration easy for both teachers and learners

Teachers' responses to the statement (4.2 ICTs have enough features to make collaboration easy for both teachers and learners) are 6 (21.43%) of the teachers SA, 14 (50%) SWA, 5 (17.86%) NANDA, 3 (10.71%) SWDA, 0 (0%) SDA. So, half of the respondents SWA

that ICTs have enough features to make collaboration easy for both teachers and learners. See Graph (9).

Graph 9. The features of ICT make collaboration easy for both teachers and learners.

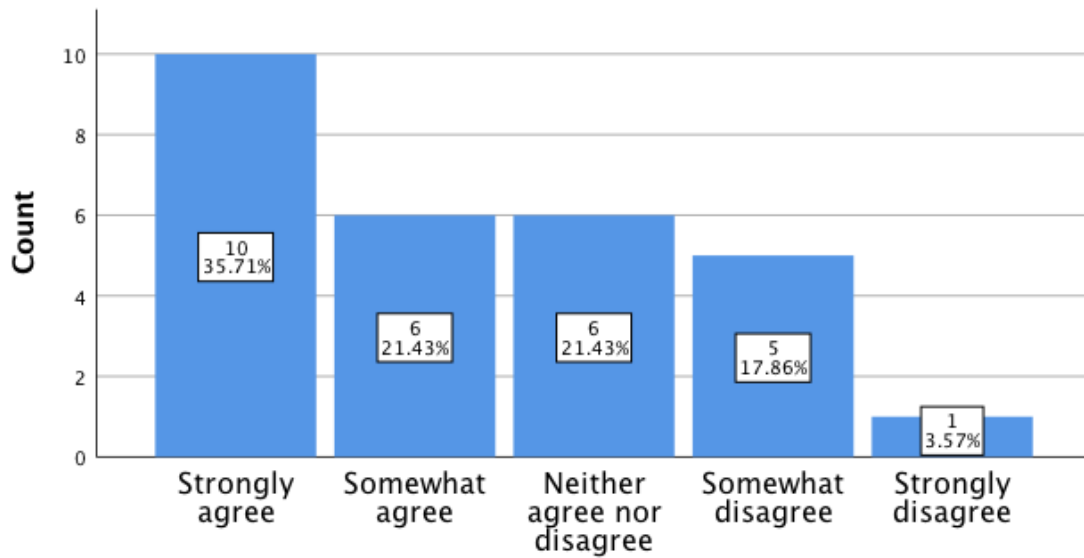


4.2 ICTs have enough features to make easy collaboration for both teachers and learners

5.1.4.3 The use of ICT for CL encourages students to communicate more with their group mates

In their responses to the statement (4.3 The use of ICT for CL encourages students to communicate more with their group mates), 10 (35.71%) of teachers SA, 6 (21.43%) of them SWA, 6 (21.43%) of them NANDA, 5 (17.86%) of them SWDA, 1 (3.57%) of them SDA. Hence, most teachers SA that using ICT for CL encourages students to communicate more with their group mates. See Graph (10).

Graph 10. ICT use in CL encourages students to communicate more with their group mates.

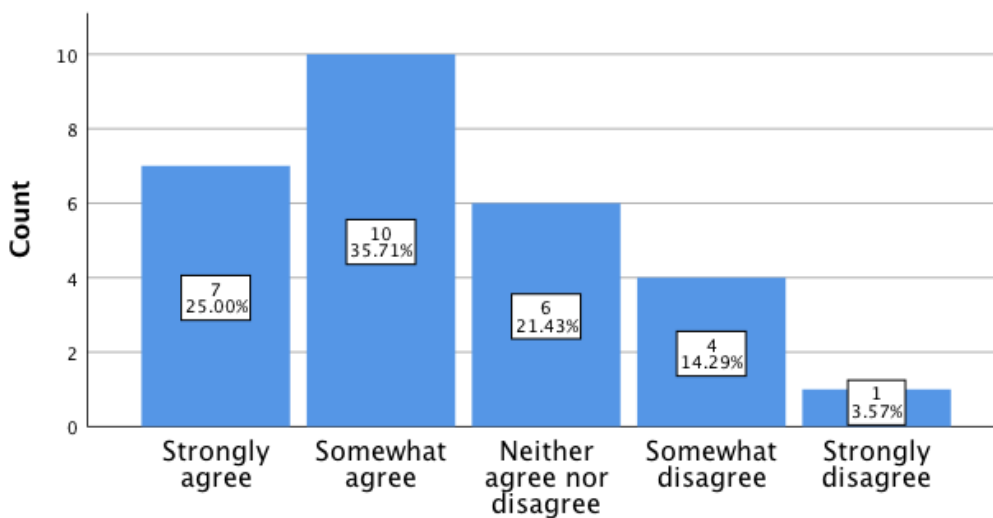


4.3 The use of ICT for CL encourages students to communicate more with their groupmates.

5.1.4.4 The use of ICT for CL increases students’ confidence to engage and participate actively in the lesson

The responses to the statement (4.4 The use of ICT for CL increases students’ confidence to engage and participate actively in the lesson) were 7 (25%) of respondents SA, 10 (35.71%) of them SWA, 6 (21.43%) of them NANDA, 4 (14.29%) of them SWDA, 1 (3.57%) of them SDA. The top response is SWA that using ICT for CL increases students’ confidence to engage and participate actively in the lesson. See Graph (11).

Graph 11. ICT use in CL increases students’ confidence to engage and participate actively in the lesson.

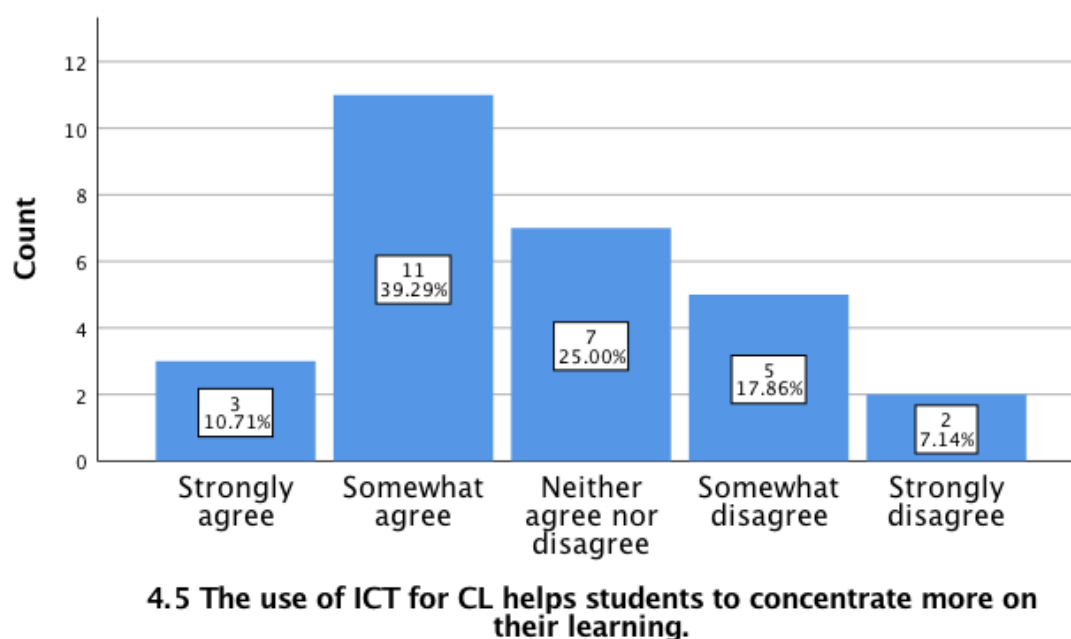


4.4 The use of ICT for CL increases students' confidence to engage and participate actively in the lesson.

5.1.4.5 The use of ICT for CL helps students to concentrate more on their learning

In their responses to the statement (4.5 The use of ICT for CL helps students to concentrate more on their learning), 3 (10.71%) of teachers SA, 11 (39.29%) of them SWA, 7 (25%) of them NANDA, 5 (17.86%) of them SWDA, 2 (7.14%) of them SDA. According to the responses, we can see that most of the teachers SWA that using ICT for CL helps students concentrate more on their learning. See Graph (12).

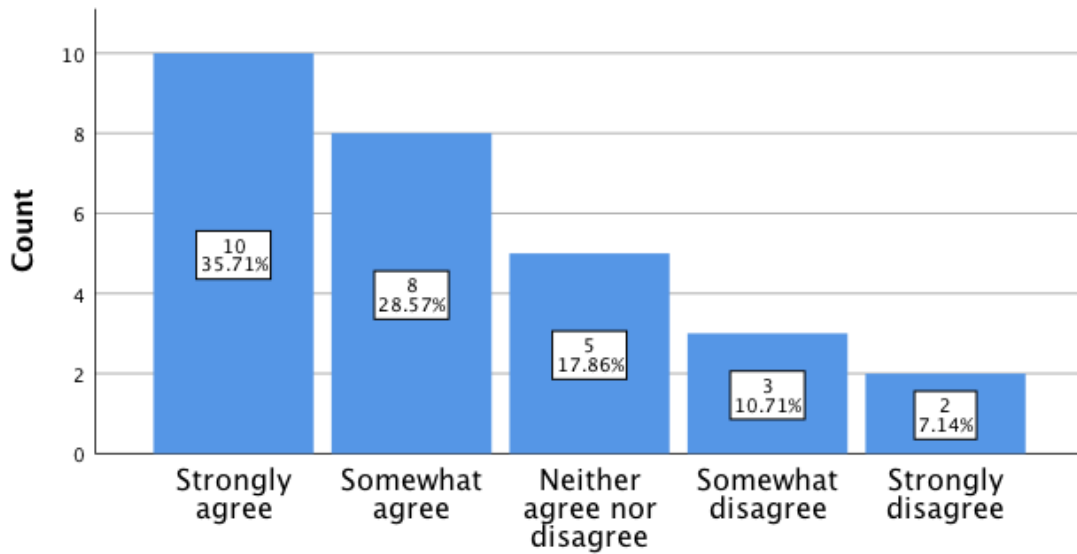
Graph 12. ICT use in CL helps students to concentrate more on their learning.



5.1.4.6 The use of ICT for CL helps students to feel more autonomous in their learning

Regarding statement (4.6 The use of ICT for CL helps students to feel more autonomous in their learning), 10 (35.71%) of EFL teachers have SA, 8 (28.57%) of them SWA, 5 (17.86%) of them NANDA, 3 (10.71%) of them SWDA, 2 (7.14%) of them SDA. Accordingly, the top response is SA that using ICT for CL helps students feel more autonomous in their learning. See Graph (13).

Graph 13. ICT use in CL helps students to feel more autonomous in their learning.

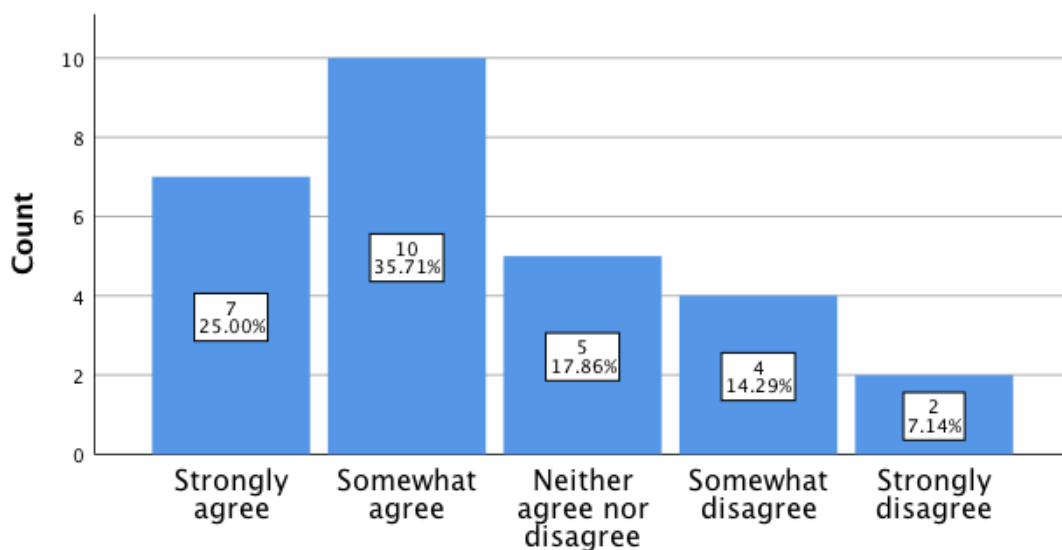


4.6 The use of ICT for CL helps students to feel more autonomous in their learning.

5.1.4.7 The use of ICT for CL helps to improve students' social networking and discussion

The teachers' response to the statement (4.7 The use of ICT for CL helps to improve students' social networking and discussion) is 7 (25%) of teachers SA, 10 (35.71%) of them SWA, 5 (17.86) of them NANDA, 4 (14.29%) of them SWDA, 2 (7.14%) of them SDA. Therefore, the majority of teachers SWA that the use of ICT for CL helps improve students' social networking and discussion. See Graph (14).

Graph 14. ICT use in CL helps to improve students' social networking and discussion.

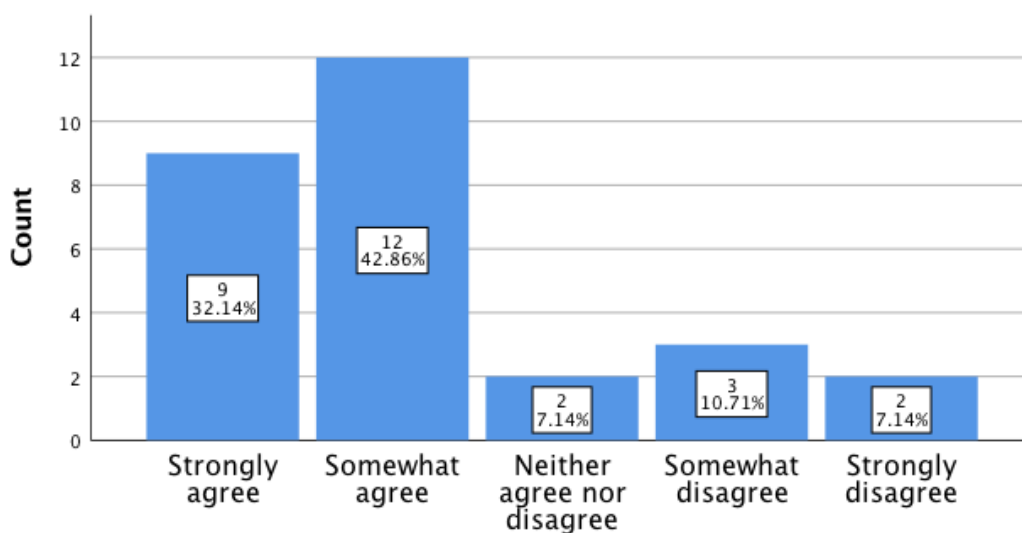


4.7 The use of ICT for CL helps to improve students' social networking and discussion.

5.1.4.8 The use of ICT for CL helps students to share knowledge and work collaboratively with their group mates.

In line with the statement (4.8 The use of ICT for CL helps students to share knowledge and work collaboratively with their group mates) 9 (32.14%) university teachers SA, 12 (42.86%) of them SWA, 2 (7.14%) of them NANDA, 3 (10.71%) of them SWDA, 2 (7.14%) of them SDA. Most respondents SWA that using ICT for CL helps students share knowledge and work collaboratively with their group mates. See Graph (15).

Graph 15. ICT use in CL helps students to share knowledge and work collaboratively with their group mates.

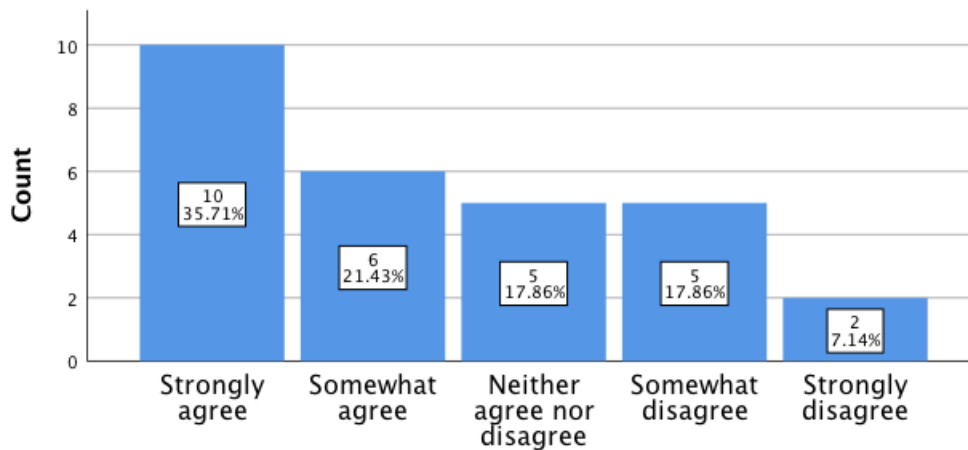


4.8 The use of ICT for CL helps students to share knowledge and work collaboratively with their group mates.

5.1.4.9 The use of ICT for CL helps students to learn interactively and increase their exposure to the EFL

Based on the responses to the statement (4.9 The use of ICT for CL helps students to learn interactively and increase their exposure to the EFL (e.g. communicating with their group mates and teacher in EFL, presenting the CL task in EFL, interacting with EFL native speakers, etc.)) 10 (35.71%) of teachers SA, 6 (21.43%) of them SWA, 5 (17.86%) of them NANDA, 5 (17.86%) of them SWDA, 2 (7.14%) of them SDA. So, the majority of respondents SA that the use of ICT for CL helps students to learn interactively and increase their exposure to the EFL. See Graph (16).

Graph 16. ICT use in CL helps students to learn interactively and increases their exposure to the EFL.

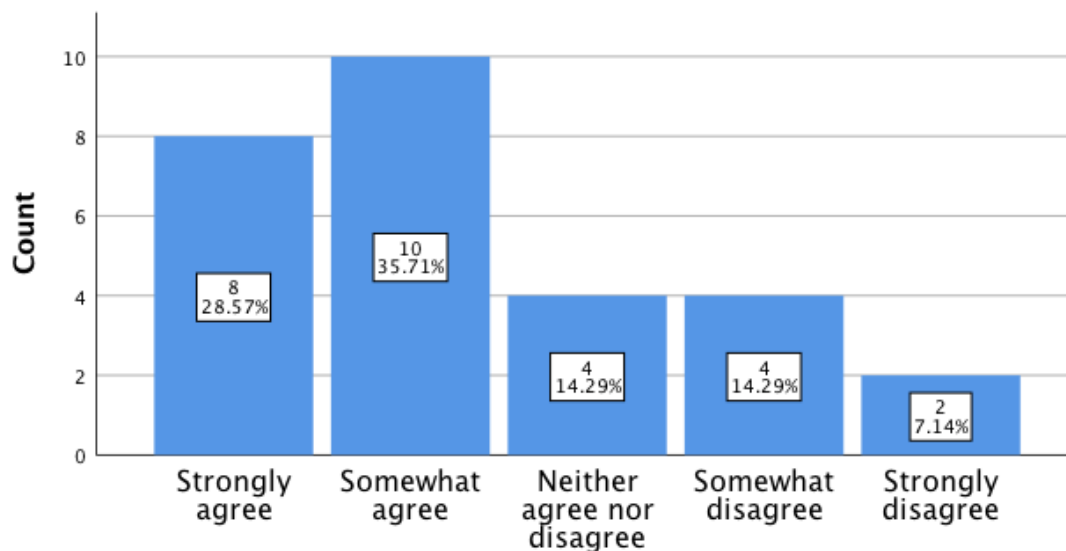


4.9 The use of ICT for CL helps students to learn interactively and increase their exposure to the EFL, (e.g. communicating with their group mates and teacher in EFL, presenting the CL task in EFL, interacting with EFL native speakers, etc.).

5.1.4.10 The use of ICT for CL improves students’ interest and enhances their knowledge of EFL

According to teachers’ responses to the statement (4.10 The use of ICT for CL improves students’ interest and enhances their knowledge in EFL), 8 (28.57%) of teachers SA, 10 (35.71%) of them SWA, 4 (14.29%) of them NANDA, 4 (14.29%) of them SWDA, 2 (7.14%) of them SDA. Hence, SWA is the top response for this statement. See Graph (17).

Graph 17. ICT use in CL improves students’ interest and enhances their knowledge in EFL.



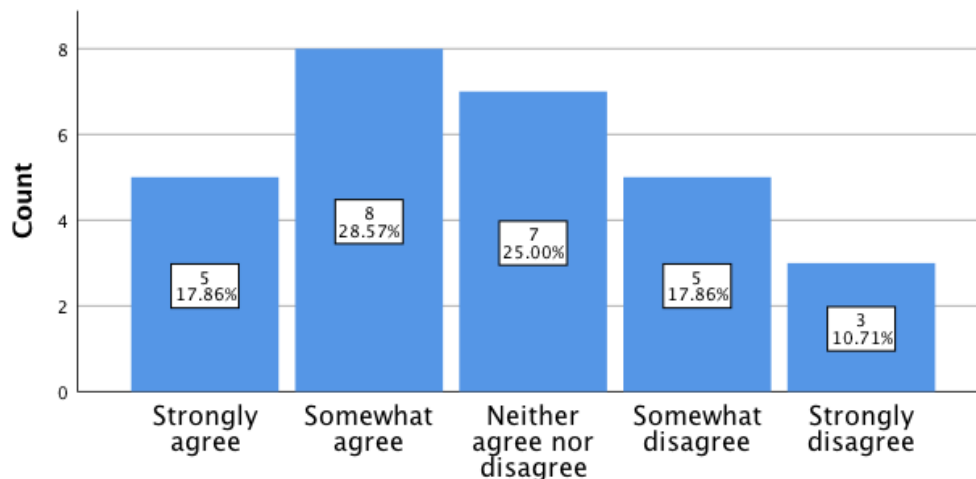
4.10 The use of ICT for CL improves students’ interest and enhances their knowledge in EFL.

5.1.4.11 The use of ICT for CL has made interacting with their group mates much easier

The respondents’ responses to the statement (4.11 The use of ICT for CL has made interacting with their group mates much easier, which leads to improving the ratings that they

would have obtained through individual work in the task) 5 (17.86) of respondents SA, 8 (28.57%) of them SWA, 7 (25%) of them NANDA, 5 (17.86) of them SWDA, 3 (10.71%) of them SDA. We can get to the conclusion that most of the respondents SWA with the above-mentioned statement. See Graph (18).

Graph 18. ICT use in CL makes interacting within group mates much easier, which leads to improving the ratings that the students would have obtained through individual work on the task.

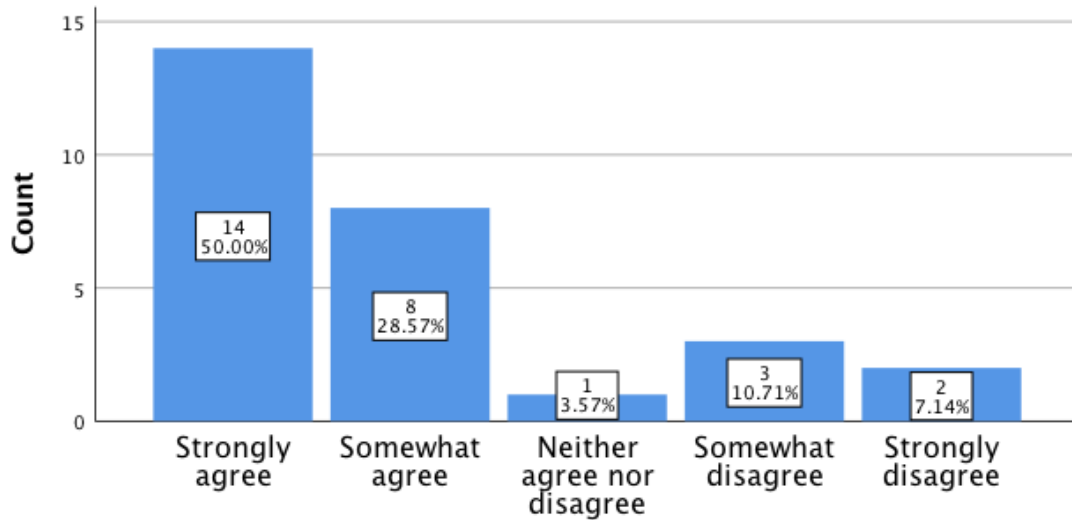


4.11 The use of ICT for CL has made interacting with their group mates much easier, which leads to improving the ratings that they would have obtained through individual work in the task.

5.1.4.12 With the use of ICT for CL, we (teacher-student, student-student) can easily get together even outside of university with no barriers of time and place.

In their responses to the statement (4.12 With the use of ICT for CL, we (teacher-student, student-student) can easily get together even outside of university with no barriers of time and place). 14 (50%) of teachers SA, 8 (28.57%) of them SWA, 1 (3.57%) of them NANDA, 3 (10.71%) of them SWDA, 2 (7.14%) of them SDA. in line with the teachers' responses majority of the teachers SA with the statement. See Graph (19).

Graph 19. With the use of ICT for CL, teacher-student and student-student can easily get together even outside of university with no barriers of time and place.

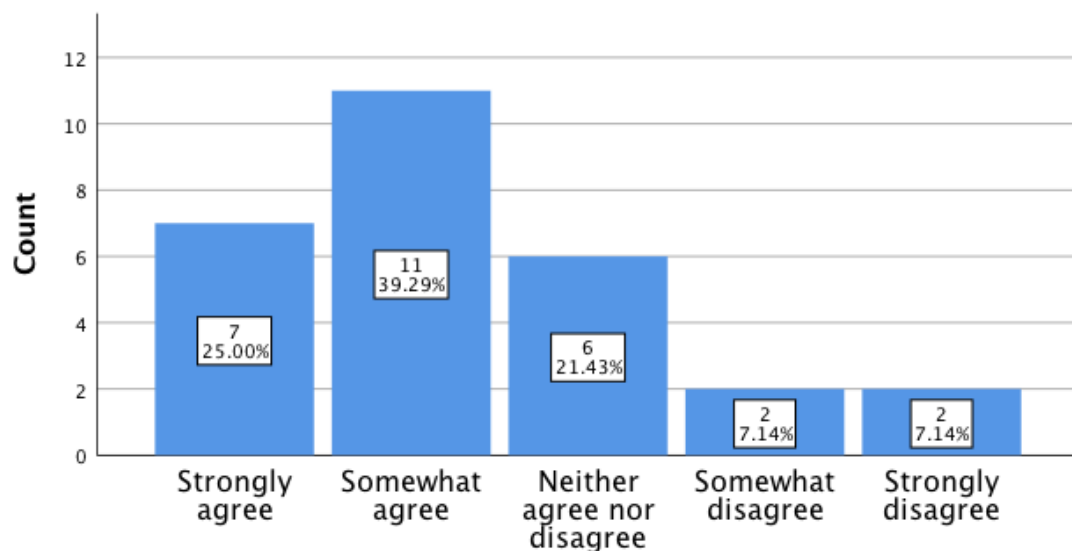


4.12 With the use of ICT for CL, we (teacher-student, student-student) can easily get together even outside of university with no barriers of time and place.

5.1.4.13 The use of ICT for CL increases students’ motivation and they enjoy learning

EFL university teachers’ responses to the statement (4.13 The use of ICT for CL increases students’ motivation and they enjoy learning) is 7 (25%) of them SA, 11 (39.29%) of them SWA, 6 (21.43%) of them NANDA, 2 (7.14%) of them SWDA, 2 (7.14%) of them SDA. Thus, most respondents SWA that using ICT for CL increases students’ motivation and they enjoy learning. See Graph (20).

Graph 20. ICT use in CL increases students’ motivation, and they enjoy learning.



4.13 The use of ICT for CL increases students’ motivation and they enjoy learning.

Summary: To answer the second research question (*What are the impacts of using ICT as a tool for CL to improve EFL learning?*) EFL University teachers have been asked questions and statements to know to what extent they agree or disagree with the statement (4.1 - 4.13).

Teachers' responses to the statement (4.1 Do you think ICT is a suitable tool for CL to improve students' EFL learning? Please explain it) are in two sections. In the first section, they had a Yes or No question. In line with their answers, 3 (10.7%) of EFL university teachers answered that "No" ICT is not a suitable tool for CL to improve student's EFL learning; in contrast, 25 (89.3%) of them answered "Yes" ICT is a suitable tool for CL to improve student's EFL learning.

In the second section of the same question, the teachers explained why and why not they think ICT is a suitable tool for CL to improve students' EFL learning. T1, T3, T4, T6, T8, T9, T10, T12, T14, T15, T16, T17, T18, T19, and T22 clearly demonstrated the use of ICT in CL to help EFL students learn more effectively. Moreover, T2, T5, T11, T13, T21, T23, T24, T25, T26, and T28, despite expressing Yeses for the positives of ICT in CL for improving EFL learners' learning, either specify the uses of ICT in CL for improving EFL learning, or they state exceptions for its usage. In contrast, T7, T20, and T27 do not think ICT is suitable for CL to improve students' EFL learning. For example, T7 states 'No' because the lack of internet connection makes the students less willing to use EFL learning sites. T20 believes "it depends on the teacher as well as their students" whether they are willing to use ICT in CL for improving learning EFL. T27 has Somewhat No response because he/she assumes that "it is not good to overestimate ICT as a tool for cooperative learning" because he/she believes it is a teacher who makes changes and improvements in learning, not a tool (ICT).

In response to the statement (4.2 ICTs have enough features to make collaboration easy for both teachers and learners), most of the teachers' responses are 14 (50%) SWA, and the second top teachers' responses are 6 (21.43%) SA. So, we can conclude that most teachers agree that ICTs have enough features to make collaboration easy for both teachers and learners.

The responses to the statement (4.3 The use of ICT for CL encourages students to communicate more with their group mates) 10 (35.71%) of teachers SA, and 6 (21.43%) of them SWA. Hence, 16 out of 28 teachers agree that using ICT for CL encourages students to communicate more with their group mates.

According to the responses to the statement (4.4 The use of ICT for CL increases students' confidence to engage and participate actively in the lesson), 7 (25%) of respondents

SA and 10 (35.71%) of them SWA. Thus, more than half of the teachers agree that using ICT for CL increases students' confidence to engage and participate actively in the lesson.

The EFL teachers' responses to the statement (4.5 The use of ICT for CL helps students to concentrate more on their learning) is 3 (10.71%) of teachers SA, and 11 (39.29%) of them SWA. So, half of the teachers agree that using ICT for CL helps students concentrate more on their learning.

In line with the statement (4.6 The use of ICT for CL helps students to feel more autonomous in their learning), 10 (35.71%) of EFL teachers SA and 8 (28.57%) of them SWA. This implies that 18 out of 28 teachers agree that using ICT for CL helps students feel more autonomous in their learning.

In their responses to the statement (4.7 The use of ICT for CL helps to improve students' social networking and discussion), 7 (25%) of teachers SA and 10 (35.71%) of them SWA. Accordingly, 17 out of 28 teachers agree that the use of ICT for CL helps to improve students' social networking and discussion.

Regarding the teachers' responses to the statement (4.8 The use of ICT for CL helps students to share knowledge and work collaboratively with their group mates), 9 (32.14%) university teachers SA and 12 (42.86%) of them SWA. As a result, 21 out of 28 university teachers agree that using ICT for CL helps students share knowledge and work collaboratively with their group mates.

The respondents' responses to the statement (4.9 The use of ICT for CL helps students to learn interactively and increase their exposure to the EFL (e.g., communicating with their group mates and teacher in EFL, presenting the CL task in EFL, interacting with EFL native speakers, etc.)) is 10 (35.71%) of them SA and 6 (21.43%) of them SWA. So, we can say more than half of the respondents agree that using ICT for CL helps students to learn interactively and increase their exposure to the EFL.

Based on the teachers' responses to the statement (4.10 The use of ICT for CL improves students' interest and enhances their knowledge in EFL), 8 (28.57%) of teachers SA and 10 (35.71%) of them SWA. This means that (18) of the teachers agree that using ICT for CL improves students' interest and enhances their knowledge of EFL.

While in teachers' responses to the statement (4.11 The use of ICT for CL has made interacting with their group mates much easier, which leads to improving the ratings that they would have obtained through individual work in the task) is 5 (17.86) of teachers SA, 8

(28.57%) of them SWA. In total, 13 out of 28 teachers agree that using ICT for CL has made interacting with their group mates much easier, which leads to improving the ratings they would have obtained through individual work on the task.

In accordance with the responses to the statement (4.12 With the use of ICT for CL, we (teacher-student, student-student) can easily get together even outside of university with no barriers of time and place). 14 (50%) of teachers are SA, and 8 (28.57%) of them are SWA. We can get to the point that 22 out of 28 teachers agree that with the use of ICT for CL, teacher-student and student-student can easily get together even outside of university with no barriers of time and place.

In their responses to the statement (4.13 The use of ICT for CL increases students' motivation and they enjoy learning), 7 (25%) of EFL university teachers SA and 11 (39.29%) of them SWA. So, 18 out of 28 teachers agree that using ICT for CL increases students' motivation, and they enjoy learning.

All in all, the EFL university teachers' responses to the questions and statements (4.1 - 4.13) indicate that using ICT as a tool for CL has positive effects on improving students' EFL learning.

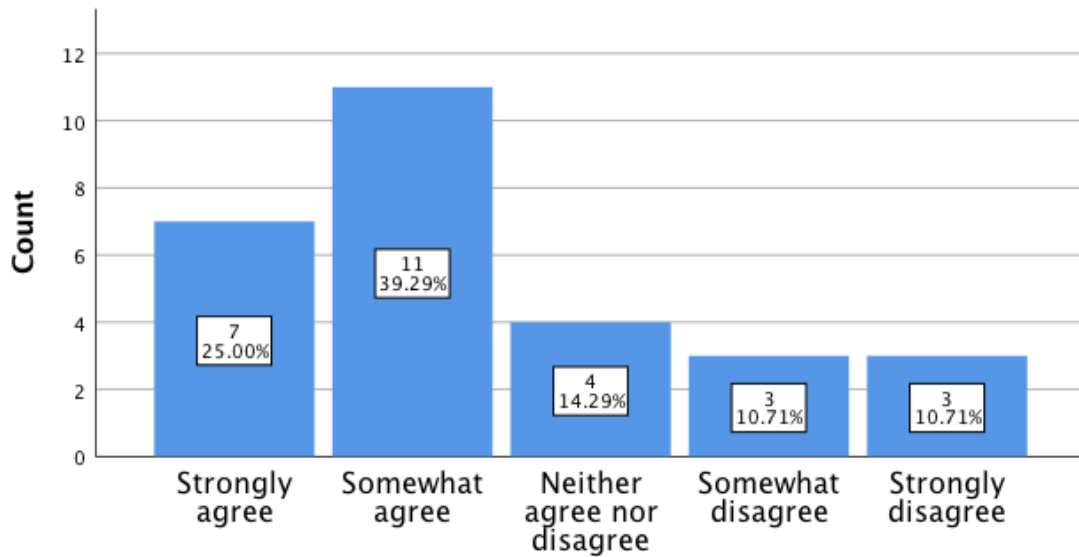
5.1.5 The barriers of using ICT with the use of CL in teaching EFL

The EFL university teachers have been asked the statements (5.1-5.15) to see to what extent they agree with the statements to get the responses for the third research question (What are the barriers of using ICT with the use of CL in teaching EFL?)

5.1.5.1 Lack of Teacher's knowledge (ICT Competence) of how to use ICT effectively for CL in teaching and learning

Of the teachers' responses to the statement (5.1 Lack of Teacher's knowledge (ICT Competence) of how to use ICT effectively for CL in teaching and learning), 7 (25%) of teachers SA, 11 (39.29%) of them SWA, 4 (14.29%) of them NANDA, 3 (10.71%) of them SWDA, 3 (10.71%) of them SDA. According to the teachers' responses, the first top response, 11 (39.29%), partially agree with the statement.

Graph 21. Lack of ICT Competence as a barrier of using ICT in CL in teaching and learning.

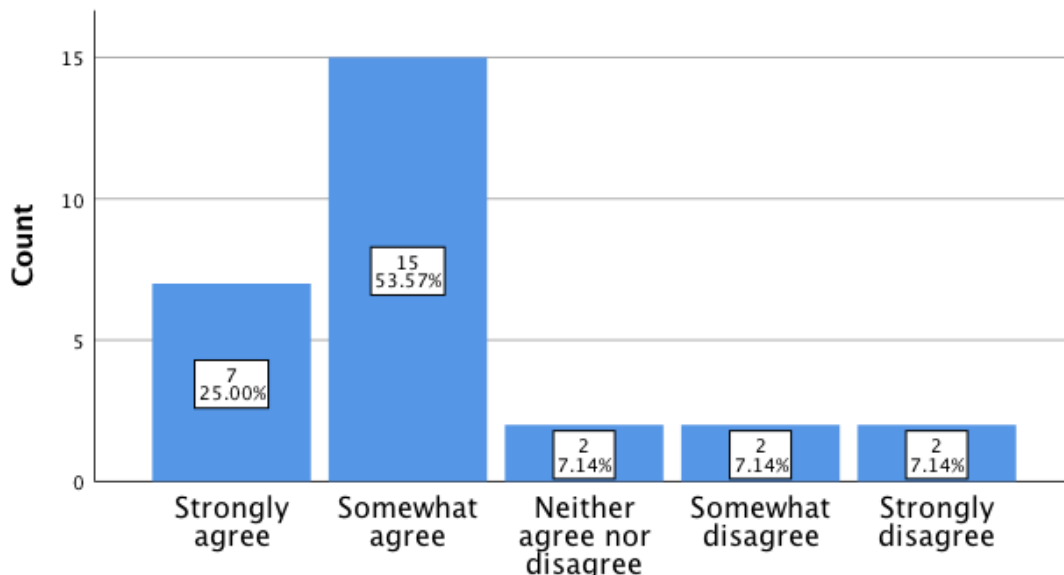


5.1 Lack of Teacher's knowledge (ICT Competence) of how to use ICT effectively for CL in teaching and learning.

5.1.5.2 Lack of Effective ICT Training Courses.

The teachers' responses to this statement (5.2 Lack of Effective ICT Training Courses) are 7 (25%) of them SA, 15 (53.57%) of them SWA, 2 (7.14%) of them NANDA, 2 (7.14%) of them SWDA, 2 (7.14%) of them SDA. The top response is for SWA 15 (53.57%); the teachers partially agree with this statement.

Graph 22. Lack of ICT Training Courses.



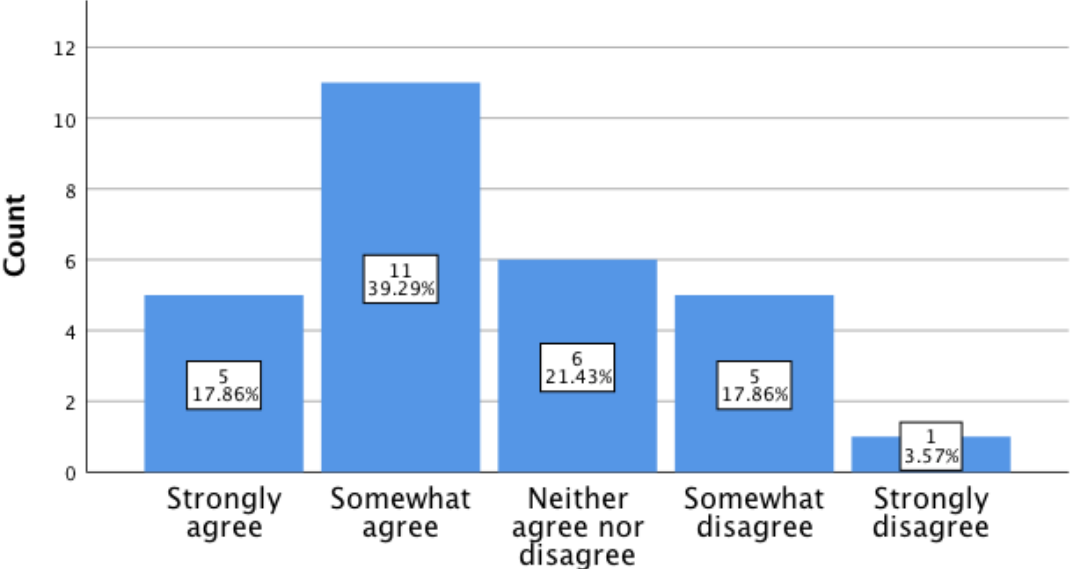
5.2 Lack of Effective ICT Training Courses.

5.1.5.3 Lack of teacher's confidence in using ICT for CL

In their responses to the statements (5.3 Lack of teacher's confidence in using ICT for CL), 5 (17.86%) of EFL teachers SA, 11 (39.29%) of them SWA, 6 (21.43%) of them NANDA,

5 (17.86%) of them SWDA, 1 (3.57%) of them SDA. So, most responses 11 (39.29%) are SWA with the abovementioned statement.

Graph 23. Lack of confidence in using ICT for CL.

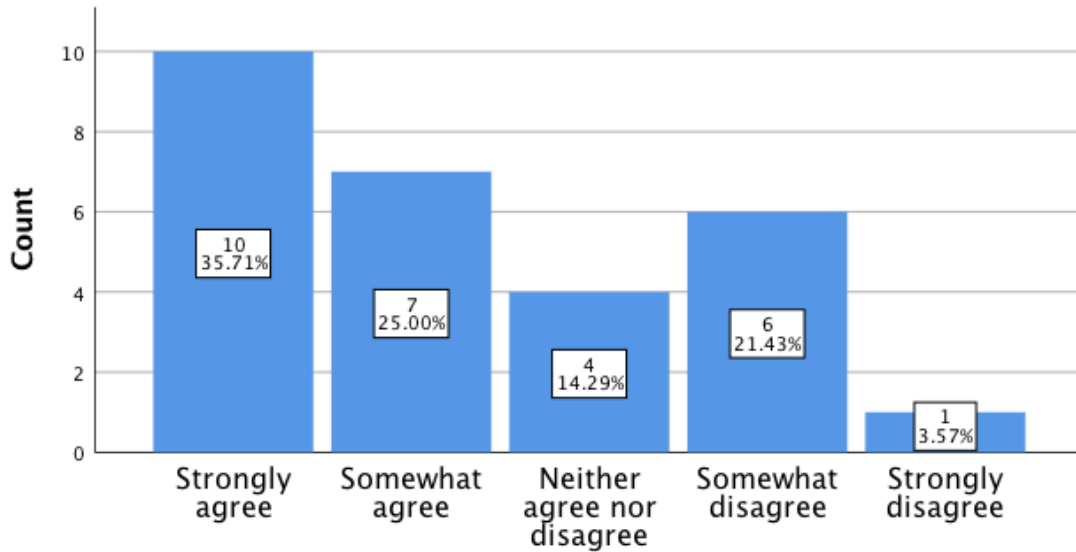


5.3 Lack of teacher's confidence in using ICT for CL.

5.1.5.4 Lack of access/insufficient number of the ICT devices and software to be used for CL

10 (35.71%) of teachers SA, 7 (25%) of them SWA, 4 (14.29%) of them NANDA, 6 (21.43%) of them SWDA, 1 (3.57%) of them SDA with the statement (5.4 Lack of access/insufficient number of the ICT devices and software to be used for CL). So, the top responses 10 (35.71%) SA with this statement.

Graph 24. Lack of access to ICT devices and software to be used for CL.

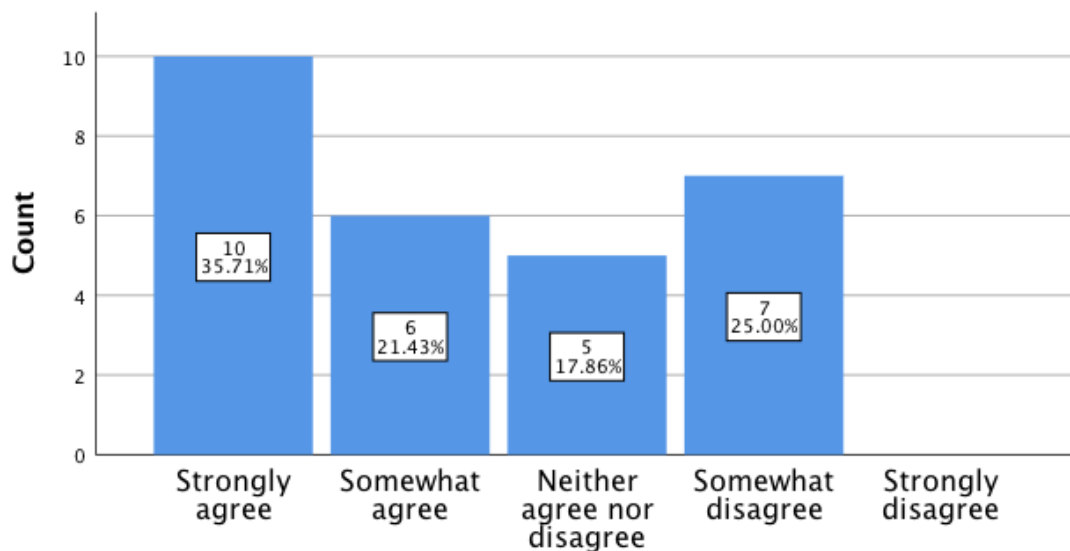


5.4 Lack of access/insufficient number of the ICT devices and software to be used for CL.

5.1.5.5 Teacher’s technophobia (fear of using ICT) toward using ICT in CL

In line with their responses to the statement (5.5 Teacher’s technophobia (fear of using ICT) toward using ICT in CL), 10 (35.71%) of university teachers SA, 6 (21.43%) of them SWA, 5 (17.86%) of them NANDA, 7 (25%) of them SWDA, 0 (0%) of them SDA. We can conclude that most respondents 10 (35.71%) SA with the aforementioned statement.

Graph 25. Fear of using ICT.



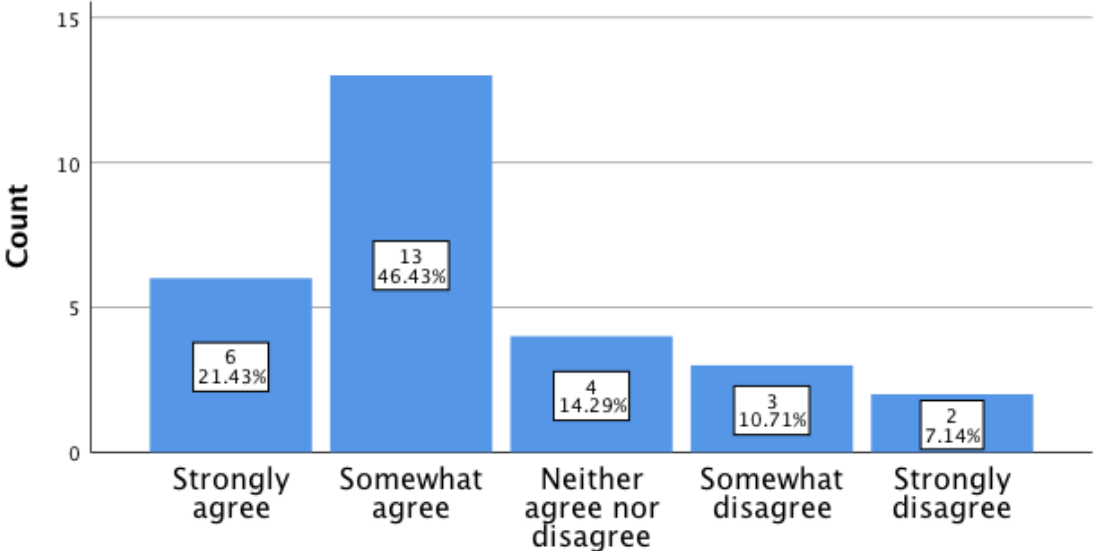
5.5 Teacher’s technophobia (fear of using ICT) toward using ICT in CL.

5.1.5.6 Teacher’s resistance to change and negative attitude toward the use of ICT

The respondents’ responses to the statement (5.6 Teacher’s resistance to change and

negative attitude toward the use of ICT) is 6 (21.43%) of them SA, 13 (46.43%) of them SWA, 4 (14.29%) of them NANDA, 3 (10.71) of them SWDA, 2 (7.14%) of them SDA. Hence, 13 (46.43%) of respondents partially agree with the statement.

Graph 26. Resistance to change and negative attitude toward the use of ICT.

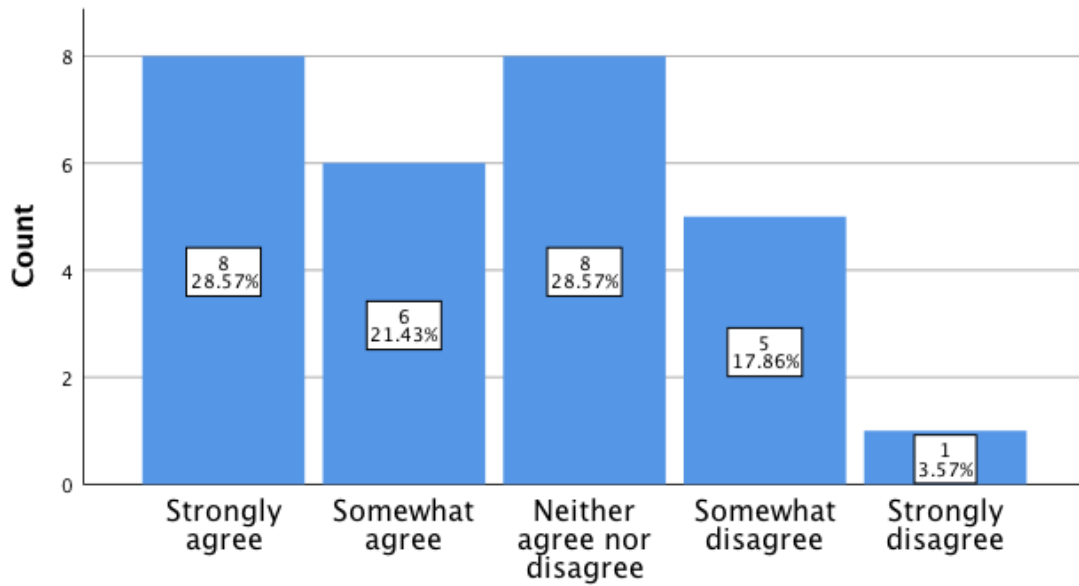


5.6 Teacher's resistance to change and negative attitude toward the use of ICT.

5.1.5.7 Inadequacy of ICT to meet the students' educational needs

The EFL teachers' responses to the statement (5.7 Inadequacy of ICT to meet the students' educational needs) are 8 (28.57%) of them SA, 6 (21.43%) of them SWA, 8 (28.57%) of them NANDA, 5 (17.86%) of them SWDA, 1 (3.57%) of them SDA. The top responses are SA 8 (28.57%) and NANDA 8 (28.57%) with the statement.

Graph 27. Inadequacy of ICT to meet the students' educational needs.

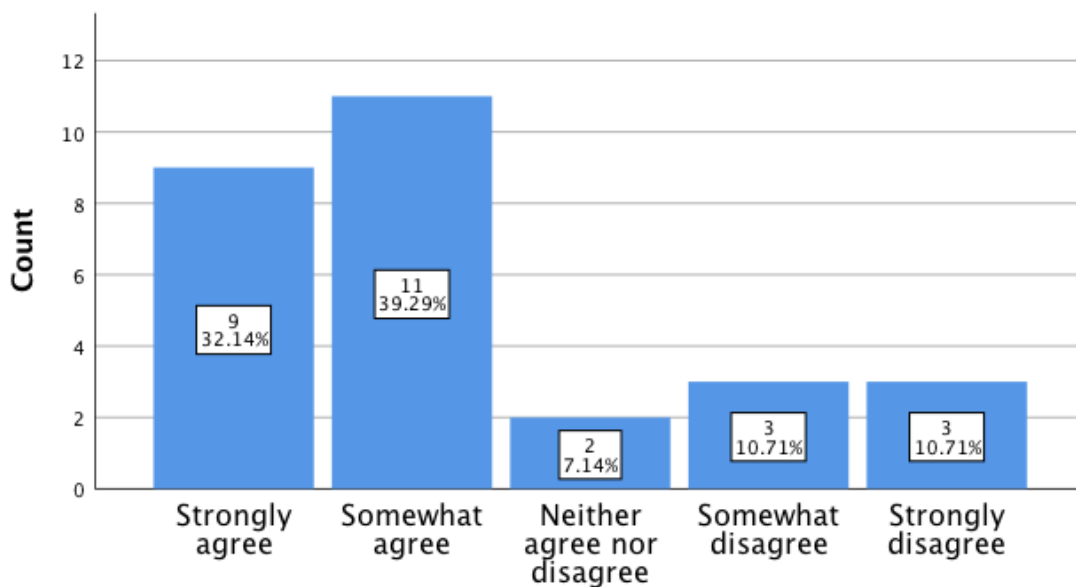


5.7 Inadequacy of ICT to meet the students' educational needs.

5.1.5.8 Lack of technical support

9 (32.14%) of teachers SA, 11 (39.29%) of them SWA, 2 (7.14%) of them NANDA, 3 (10.71%) of them SWDA, 3 (10.71%) of them SDA with the statement (5.8 Lack of technical support). We can conclude that 11 (39.29%) of teachers are SWA and that lack of technical support is a barrier.

Graph 28. Lack of technical support.



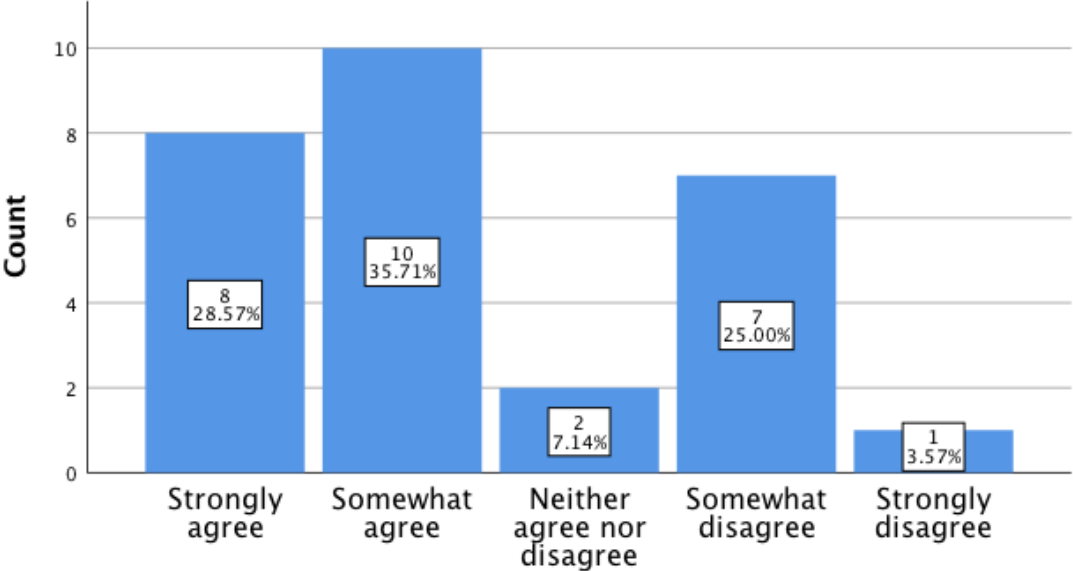
5.8 Lack of technical supports.

5.1.5.9 Teacher's lack of time

8 (28.57%) respondents were SA, 10 (35.71%) of them SWA, 2 (7.14%) of them

NANDA, 7 (25%) of them SWDA, 1 (3.57%) of them SDA (5.9 Teacher’s lack of time) could be a barrier for implementing ICT in CL for teaching EFL. In line with their responses, 10 (35.71%) of teachers are SWA with the statement.

Graph 29. Teacher’s lack of time to use ICT in CL.



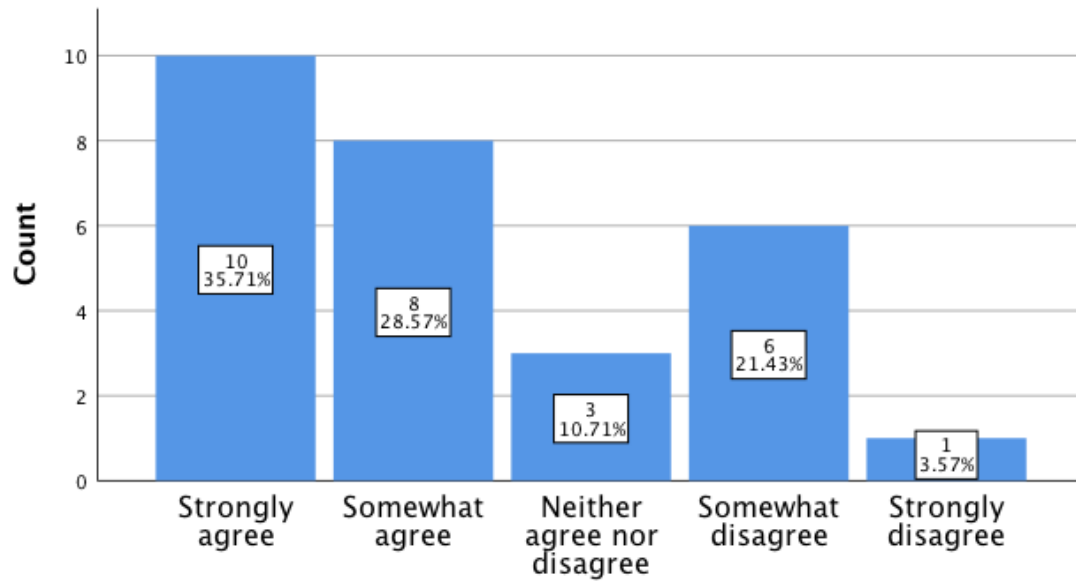
5.9 Teacher’s lack of time.

5.1.5.10 Lack of administration’s support in using ICT in CL

The teachers’ responses to the statement (5.10 Lack of administration's support in using ICT in CL) are as the following:

10 (35.71%) of teachers SA, 8 (28.57%) of them SWA, 3 (10.71%) of them NANDA, 6 (21.43%) of them SWDA, 1 (3.57%) of them SDA. Therefore, the top response is SA 10 (35.71%) with the statement.

Graph 30. Lack of administration's support in using ICT in CL.

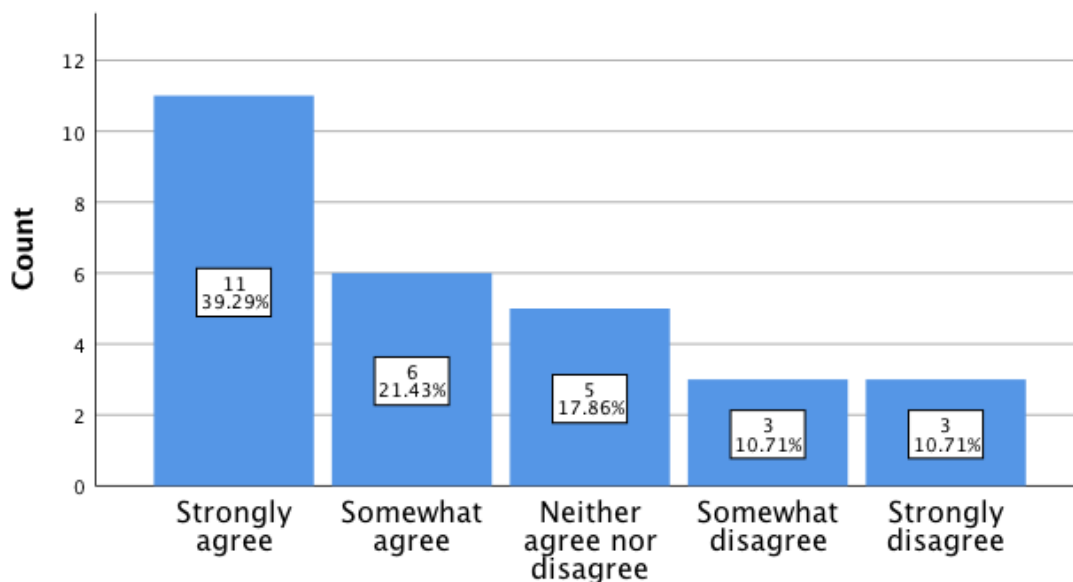


5.10 Lack of administration's support in using ICT in CL.

5.1.5.11 Inadequate space and infrastructural facilities

The respondents' responses to the statement (5.11 Inadequate space and infrastructural facilities) are 11 (39.29%) of them SA, 6 (21.43%) of them SWA, 5 (17.86%) of them NANDA, 3 (10.71%) of them SWDA, 3 (10.71%) of them SDA. So, 11 (39.29%) of the respondents SA that inadequate space and infrastructural facilities are barriers.

Graph 31. Inadequate space and infrastructural facilities as a barrier of using ICT in CL.



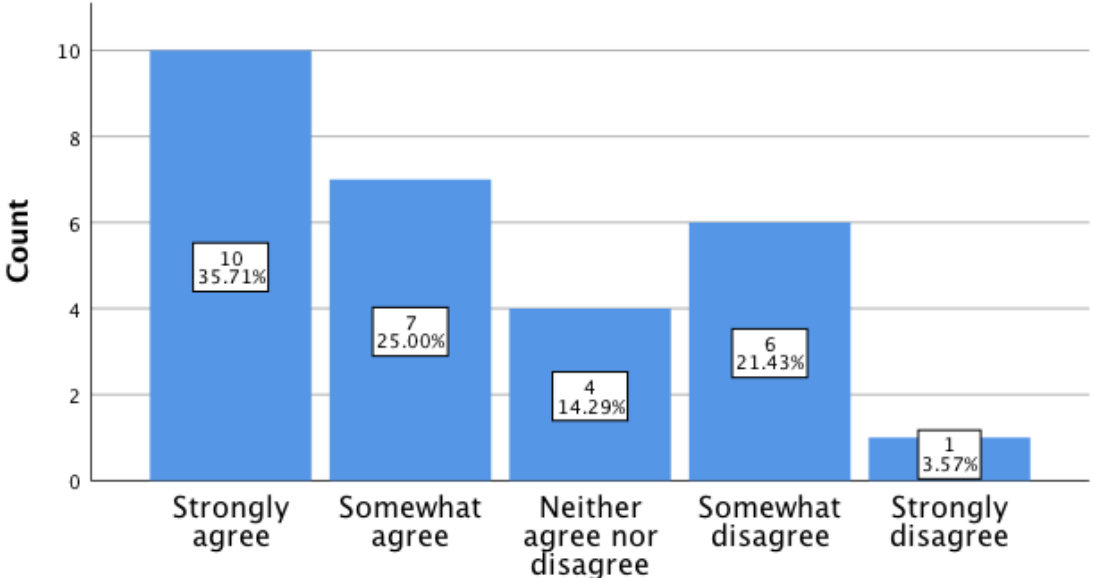
5.11 Inadequate space and infrastructural facilities.

5.1.5.12 Lack of coordination and management systems

10 (35.71%) of teachers SA, 7 (25%) of them SWA, 4 (14.29%) of them NANDA, 6 (21.43%) of them SWDA, 1 (3.57%) of them SDA with the statement (5.12 Lack of

coordination and management systems). Thus, 10 (35.71%) of teachers are SA with the statement.

Graph 32. Lack of coordination and management systems as a barrier of using ICT in CL.

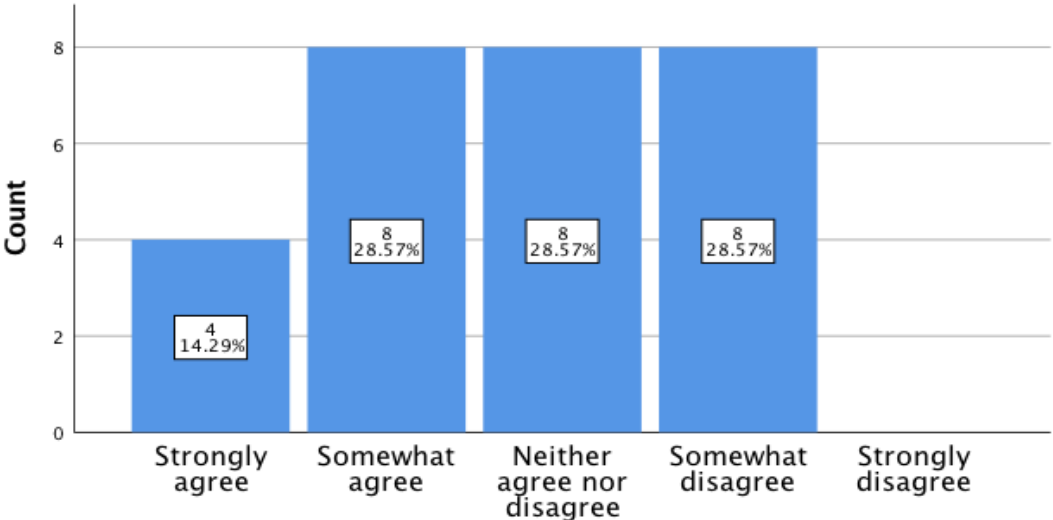


5.12 Lack of coordination and management systems.

5.1.5.13 ICT use and ethical issues

In their responses to the statement (5.13 ICT use and ethical issues), 4 (14.29%) EFL university teachers SA, 8 (28.57%) of them SWA, 8 (28.57%) of them NANDA, 8 (28.57%) of them SWDA. According to the teachers' responses, 8 (28.57%) of teachers SWA, 8 (28.57%) of them NANDA, and 8 (28.57%) of them SWDA with the statement above.

Graph 33. ICT use and ethical issues as a barrier of using ICT in CL.

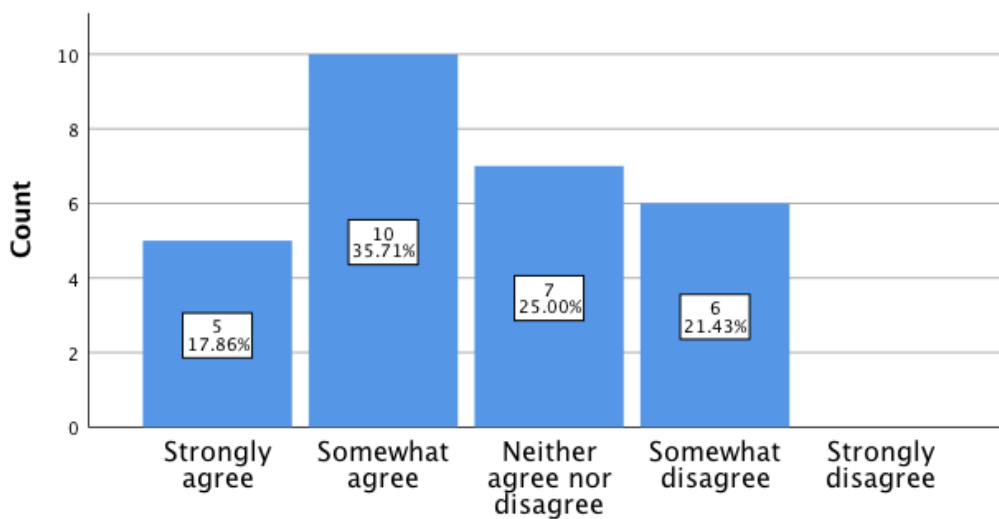


5.13 ICT use and ethical issues.

5.1.5.14 Mismatch between ICT implementation and the educational setting's culture

5 (17.86%) of teachers SA, 10 (35.71%) of them SWA, 7 (25%) of them NANDA, 6 (21.43%) of them SWDA with the statement (5.14 Mismatch between ICT implementation and educational setting's culture). We can conclude that the most response is 10 (35.71%), the teachers SWA with the statement.

Graph 34. Mismatch between ICT implementation and the educational setting's culture as a barrier to use ICT in CL.

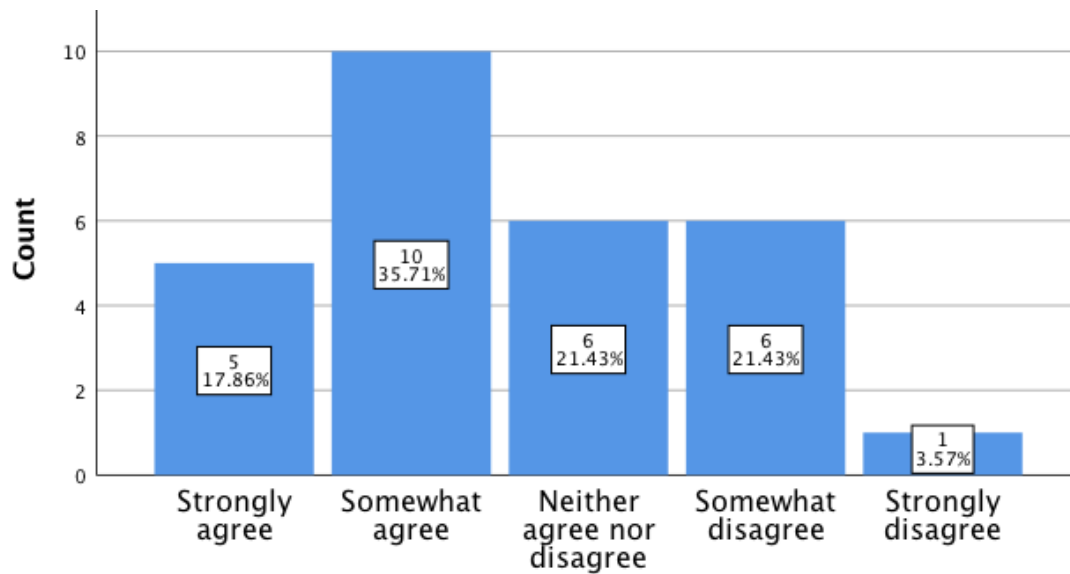


5.14 Mismatch between ICT implementation and the educational setting's culture.

5.1.5.15 Mismatch between ICT and curriculum.

The teachers' responses to the statement (5.15 Mismatch between ICT and curriculum) are 5 (17.86%) of teachers SA, 10 (35.71%) of them SWA, 6 (21.43%) of them NANDA, 6 (21.43%) of them SWDA, 1 (3.57%) of them SDA. So, 10 (35.71%) of teachers partially agree that the Mismatch between ICT and curriculum is a barrier.

Graph 35. Mismatch between ICT and curriculum as a barrier to using ICT in CL.



5.15 Mismatch between ICT and curriculum.

Summary: teachers' responses to the statements (5.1-5.15) help the researcher to figure out the answer to the third research question (*What are the barriers of using ICT with the use of CL in teaching EFL?*)

In their responses to the statement (5.1 Lack of Teacher's knowledge (ICT Competence) of how to use ICT effectively for CL in teaching and learning), 7 (25%) of teachers SA and 11 (39.29%) of them SWA, which means 18 out of 28 teachers who agree that the lack of teacher's knowledge (ICT Competence) becomes a barrier of how to use ICT effectively for CL in teaching and learning.

According to the teachers' responses to the statement (5.2 Lack of Effective ICT Training Courses), 7 (25%) of teachers SA and 15 (53.57%) of them SWA. So, most of the teachers agree that a lack of effective ICT training courses can be a barrier to preventing teachers from using ICT in CL.

Teachers' responses to the statements (5.3 Lack of teacher's confidence in using ICT for CL) display that 5 (17.86%) of EFL teachers SA and 11 (39.29%) of them SWA. Hence, more than half of the teachers agree that a lack of teacher confidence can be an obstacle to preventing teachers from using ICT in CL.

Based on the responses to the statement (5.4 Lack of access/insufficient number of the ICT devices and software to be used for CL), 10 (35.71%) of teachers SA and 7 (25%) of them

SWA, therefore, 17 of the teachers agree that lack of access or an insufficient number of the ICT devices and software can be an obstruction for teachers to use ICT in CL.

In accordance with the teachers' responses to the statement (5.5 Teacher's technophobia (fear of using ICT) toward using ICT in CL), the first most answers of teachers are SA 10 (35.71%) and the second most responses are SWA 6 (21.43%). Thus, 16 teachers agree that teachers having technophobia (fear of using ICT) toward using ICT can be a barrier to depriving teachers of using ICT in CL.

Concerning the responses to the statement (5.6 Teacher's resistance to change and negative attitude toward the use of ICT), 6 (21.43%) of university teachers SA and 13 (46.43%) of them SWA. So, 19 out of 28 teachers agree that teachers' resistance to change and negative attitudes toward the use of ICT can be a barrier for teachers to use ICT in CL.

The EFL teachers' responses to the statement (5.7 Inadequacy of ICT to meet the student's educational needs) is 8 (28.57%) of them SA, 6 (21.43%) of them SWA. All in all, half of the respondents agree that the inadequacy of ICT to meet the student's educational needs can obstruct teachers' use of ICT in CL.

In their responses to the statement (5.8 Lack of technical support), 9 (32.14%) of teachers SA, and 11 (39.29%) of them SWA. In total, 20 teachers agree that lack of technical support can be a barrier for teachers to practice ICT in CL.

Teachers in response to the statement (5.9 Teacher's lack of time), 8 (28.57%) of them were SA, and 10 (35.71%) of them were SWA. Therefore, 18 out of 28 teachers agree that a teacher's lack of time is a barrier.

In terms of the teacher's responses to the statement (5.10 Lack of administration's support in using ICT in CL), 10 (35.71%) of teachers SA and 8 (28.57%) of them SWA, which indicates that 18 out of 28 of teachers admit that lack of administration's support in using ICT for CL can be an obstacle for teachers to demotivate them in using ICT in CL.

Moreover, the teachers' responses to the statement (5.11 Inadequate space and infrastructural facilities) present that 11 (39.29%) of them SA and 6 (21.43%) of them SWA. So, more than half of the respondents agree that inadequate space and infrastructural facilities can be a hurdle for teachers to apply ICT in CL in their classes.

According to the responses to the statement (5.12 Lack of coordination and management systems), 10 (35.71%) of teachers have SA, and 7 (25%) of them have SWA. Accordingly, 17

out of 28 teachers agree that a lack of coordination and management systems can be a barrier to the utilization of ICT in CL.

In their responses to the statement (5.13 ICT use and ethical issues), 4 (14.29%) EFL university teachers SA and 8 (28.57%) of them SWA. Only 12 of the teachers see ICT use and ethical issues as difficult for teachers to use ICT in CL.

The responses to the statement (5.14 Mismatch between ICT implementation and the educational setting's culture) show that 5 (17.86%) of teachers SA and 10 (35.71%) of them SWA. So, 15 out of 28 teachers agree that the mismatch between ICT implementation and the educational setting's culture can be a barrier to preventing teachers from deploying ICT in CL.

In line with the teachers' responses to the statement (5.15 Mismatch between ICT and curriculum), 5 (17.86%) of teachers SA and 10 (35.71%) of them SWA. Hence, 15 out of 28 teachers agree that the mismatch between ICT and curriculum can hinder teachers from practising ICT in CL.

As a result, the university teachers' responses to the statement (5.1 - 5.15) helped to find out that each of the statements mentioned above can be a barrier for teachers to use ICT in CL, which at the same time response for the third research question to get to know what are the sort of the barriers that cause preventions in front of the ICT application in CL.

5.1.6 Suggestions to eliminate the barriers of using ICT with the use of CL in teaching EFL

In this subsection, the analysis of the question (6.1 - 6.2) achieved responses for the fourth research question (*How can we eliminate the barriers of using ICT with the use of CL in teaching EFL?*)

5.1.6.1 How to deal with the barriers of using ICT in CL-class

In their responses to the question (6.1 How do you deal with the barriers of using ICT for CL?), the EFL university teachers (T1, T2, T3, T5, T6, T8, T9, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26, & T27) provided different methods that they practice dealing with ICT difficulties during CL-class. See Table (34).

Table 34. Teachers' clarification regarding how they deal with the barriers of using ICT for CL.

| Codes | Explanations |
|-------|--------------|
|-------|--------------|

| | |
|--|--|
| <p>T1, T2, T3, T5, T6, T8, T9, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26, & T27.</p> | <p>Taking ICT courses and not reluctant to resort to its advantages.</p> <p>I will share the link or whatever, I find it useful for students, very early in order for all of them can get it sooner before the class, so we can prevent the internet barrier in class. Or I can divide the activities of CL into two parts. Parts of them are to be done at home collaboratively through ICT use, and part of them are to be done in class.</p> <p>Improving my ICT competence helps me in raising my confidence in using ICT. For any issues that I face during ICT integration, I try to be calm and not stressed to be able to take the next step and keep on teaching. After the class, I try to find the reason behind the issue happening so as to be aware of it next time and know how to solve it.</p> <p>Changing from one platform to another to fulfill students' needs.</p> <ul style="list-style-type: none"> ● Depending on my personal devices rather than the university technological devices. ● Getting updated on the use of ICT devices. ● Teaching the students to use ICT devices by myself. <p>I use my own tech-gadgets and internet connection.</p> <p>I always try to read about ICT implementation so that I can overcome related problems.</p> <p>It needs lots of things to be done, such as encouraging teachers and students to use ICT in preparing their lectures and assignments. Provide and supply sufficient equipment in the lecture hall. Bringing interest in software in warming up such as Mural, Slack, Discourse, Slid, and so on. Assign some assignments via ICT to encourage students to collaborate together and have discussions throughout proper software. Cooperate with the administration to overcome these inconvenient issues.</p> <p>Training courses.</p> <p>I have been there and had to ask the students to bring their own laptops to the class so that we can still practice what was supposed to be practiced. I also had to provide an internet connection myself and clean the area then rearrange all the computers for those students who cannot afford laptops that still worked. I brought in an IT team to help me fix the computers in my faculty.</p> <p>Encouraging students to learn more about this system and complete the tasks, because sometimes the students become an obstacle. Since ICT integration in CL is not a common method to be implemented by teachers, students sometimes are not cooperative enough with the teacher and their classmates in accomplishing the task.</p> <p>A skillful teacher should have a plan B in case of barriers.</p> <p>The rapid enhancement of these programs requires you to be up to date. If you are not able to be up to date, then you will face some troubles. Another point is to know how to use a computer rather than</p> |
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| | <p>a smartphone.</p> <p>Instructors should avoid using traditional teaching methods and work on improving their ICT skills.</p> <p>Working with the department to overcome the barriers; Find what is available in terms of ICT tools and use it in an effective way; develop my competence with regard to using ICT tools; Set rules and instruction guidelines to avoid ethical problems.</p> <p>Before using any technological tool, I have tried to use the tool on my own or search for a YouTube video for the explanation, for the sake of preventing any technical challenge that may happen. In this way, I could to some extent prevent some barriers such as a lack of ICT knowledge and a lack of confidence.</p> <p>I always make an effort to get in the classroom 15 minutes before the scheduled start time. I look at the data show projector or any other tools I intend to employ. In the event of a problem, I try to handle the technical issues on my own. If I was unable to, I sought technical assistance from the IT team.</p> <p>First and foremost, improving self-ICT competence, and being more open-minded, learning from colleagues who have more experience with ICT.</p> <p>Sometimes there are technical problems that will be an obstacle in integrating ICT. During the occurring problem, I try not to lose so much class time fixing the problem, especially after the first or second try to fix it. I start with plans B or C for completing the rest of the lesson. After class, I will ask colleagues or search for a YouTube video to know how to deal with the problem next time.</p> <p>I must say I have been lucky and did not have to deal with any of the issues above, except occasional technical problems, which are inevitable. Sometimes I could deal with the technical problems with my students, but there were times we couldn't. So, I just moved to plan B and keep going on teaching my class and postponing the activity that needs ICT integration to be done at the library or at home.</p> <p>It depends on the situation, and I tried to think about the backup activities in lesson plan B plan C and D to be prepared in case this challenge happens to know how to start with plan B, C, or D. If I realize that the issue takes lots of time to deal with, I will just keep the activity and I will start with another activity and do something else.</p> <p>Online there are good video-tutorials on how to use Google Meet, Google Classroom, or that ICT.</p> |
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T4, T7, T10, T17, T21 & T28 have dissimilar responses to the question. T7 & T10 are more focused on the seriousness of the barriers and their difficulty to deal with. While T4, T17, T21 & T28 did not have methods of handling ICT difficulties in CL class since they either do

not use ICT in general or in CL. See Table (35).

Table 35. Teachers' clarification regarding the difficulties of ICT in CL and not being able to deal with them.

| Codes | Explanations |
|---|---|
| T4, T7, T10, T17, T21 & T28. | <p>I have not used ICT in CL to be familiar with its barriers by myself.</p> <p>Not easy at all, some students do not have access to the internet; there are very few devices in our classes, the institution cannot provide the needs. We can only use google classrooms.</p> <p>It depends on the nature of the barrier. For example, some of the barriers are related to the administration and government which are hard to deal with.</p> <p>I use class learning and traditional methods.</p> <p>I have not experienced ICT barriers since I have not integrated it in CL in my class.</p> <p>As I mentioned earlier, I have not practiced ICT in CL, so I have not experienced its barriers.</p> |

5.1.6.2 Suggesting strategies to be adopted to manage the challenges and succeed in using ICT for CL in teaching EFL

University teachers' responses to the question (6.2 What strategies do you suggest to be adopted to manage the challenges and succeed in using ICT for CL in teaching EFL?) are T1, T2, T3, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26 & T27 based on their experiences with ICT use in general and as a tool in CL, they suggested various strategies to be adopted for the sake of managing the ICT challenges and succeeding in using it in CL throughout teaching EFL. See Table (36).

Table 36. Teachers' suggestions and strategies to be adopted to manage ICT challenges and succeed in using it in CL in teaching EFL.

| Codes | Explanations |
|---|--|
| T1, T2, T3, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T18, T19, | <p>Contingency plan. For example, by offering courses that will acquaint both teachers and students with the possibilities of using ICT for CL and provide proper instruction for their usage. Also, Increase the number of ICT devices, better internet connection, technical support.</p> <ul style="list-style-type: none"> ● Increasing the administration support for ICT use. |

**T20, T22,
T23, T24,
T25, T26 &
T27.**

- Allocating space and budget for providing ICT facilities for both teachers and students.

- Providing consistent ICT training courses for teachers.

Administrative support, teacher training, encouraging teachers, changing curriculum.

Taking Training courses, self-development in technology.

Motivating both teachers and students to get enrolled and provide enough information on ICT and how to use it.

To provide ICT tools in universities and open courses for teachers and students.

Teacher's self-esteem and self-drive motive needed to boost ICT use in classes.

Flipped Classroom as a method needs to be used to help maintain a collaborative atmosphere inside the classroom in any EFL context.

- Providing continuous training courses on ICT for CL for the teachers
- Providing the educational institutions with enough facilities of ICT
- Changing the teachers' and students' attitudes towards using ICT in their teaching and learning process.

Having some quizzes and discussions via ICT to encourage students to work together.

Small number of students, fewer hours of teaching. Teachers cannot handle many classes. And it leads to less ICT and CL.

Firstly, manage working technologies at university, support and motivation for teachers to use (maybe some seminars).

The more we use computers, the better. We must follow up and ask questions about what we do not know. Or watching tapes on YouTube as long as hundreds of people are there and solving current issues.

It is critical to provide instructors with training courses so that they can incorporate ICT resources into their classroom instruction.

Motivating and encouraging both teachers and students for ICT use, providing facilities of technology, and faculty and teacher plan management in integrating ICT in CL in particular and in EFL teaching in general.

Setting realistic objectives which match the available ICT tools, do not be over ambitious. However, there is always room for improvement. I mean teachers are encouraged to update themselves especially during summer holidays. They can take part in an online course and develop professionally.

Be sensible in the amount of time with the use of ICT in EFL.

| | |
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| | <ul style="list-style-type: none"> ● Providing enough up-to-date ICT tools for both teachers and students. ● Providing enough technical support. ● Providing consistent ICT teacher training courses. <p>To provide all the classes with internet and different devices; courses for both teachers and students to teach them how to use different software.</p> <p>It is very essential that teachers stay up to date with their technological expertise. For this purpose, an ongoing ICT training course is needed to help the teachers have enough and up to date knowledge to use ICT properly and overcome at least the intrinsic barriers that they may face.</p> <p>Well, I would say financial support, training course, administration support, technical support, and affording enough ICT facilities.</p> <p>I believe training courses for both enriching ICT knowledge and how to deal with the ICT technical problems will be a great help for teachers.</p> <p>Backup plan but it doesn't save the activity if you decide to use a video that doesn't work you have to have a backup plan in this case, but this does not solve the immediate problem of technology you just start with another activity to save class time.</p> <p>To use the gained knowledge and skills via the pandemic regime with ICT tools for CL in teaching EFL in the non-pandemic times as well. (Not to completely shut the doors behind what was done during the pandemic and to start face-to-face without any changes in using ICT).</p> |
|--|--|

T4, T17, T21 & T28 had no suggestions since they admit they do not use ICT in CL. See Table (37).

Table 37. Teachers are not able to provide suggestions to manage ICT challenges in CL in teaching EFL.

| Codes | Explanations |
|--------------------------------|---|
| T4, T17, T21 & T28. | <p>Similarly, to my statement above.</p> <p>Since I am not using it now, I cannot suggest new ones except for ones practiced by others already given.</p> <p>Well, it is not easy for me to suggest strategies for overcoming the ICT challenges in CL while I have not practiced it in my teaching.</p> <p>It is again very individual, some students as well as my colleagues prefer it, some oppose it. Frankly speaking I am not using it in my CL class.</p> |

Summary: to achieve the responses to the fourth research question (*How can we eliminate the barriers of using ICT with CL in teaching EFL?*) The EFL university teachers in Kurdistan have been asked the question (6.1 - 6.2).

In teachers' responses to the question (6.1 How do you deal with the barriers of using ICT for CL?), the T1, T2, T3, T5, T6, T8, T9, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26, & T27 clearly mentioned the way they deal with ICT difficulties during CL-class. In addition, T4, T7, T10, T17, T21, and T28 gave different answers to the question. T7 and T10 were more concerned with the seriousness of the impediments and their difficulty in overcoming them. T4, T17, T21, and T28, on the other hand, did not have any ways of dealing with ICT challenges in CL-class since they either do not use ICT in general or in CL.

Concerning their responses to the question (6.2 What strategies do you suggest to be adopted to manage the challenges and succeed in using ICT for CL in teaching EFL?) T1, T2, T3, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26 & T27 based on their experiences with ICT use in general and as a tool in CL, they recommended a variety of ways for dealing with ICT problems and successfully using it in CL throughout EFL teaching. While T4, T17, T21 & T28 admitted that they do not use ICT in CL, thus they had no suggestions.

So, in their responses to the question (6.1 - 6.2), the EFL university teachers expressed the method they have practised handling the difficulties they face during the ICT use in CL in their classes. In addition to suggesting further strategies to overcome obstacles and succeed in using ICT for CL in EFL teaching.

5.2 Class observation

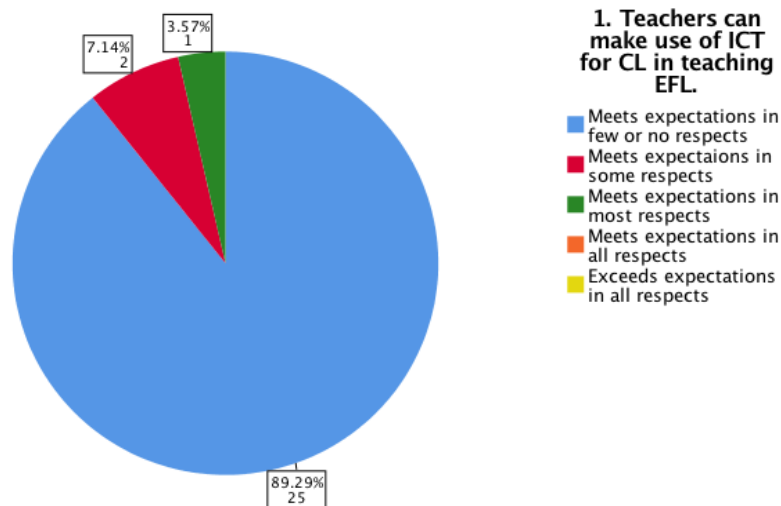
The class observation has been conducted as a second method of collecting data regarding using ICT as a tool in CL in teaching EFL. Throughout the class observation, the researcher focused only on collecting data about the teacher's use of ICT for CL in teaching EFL. For this purpose, a printed structured checklist of 22 statements with a 5 Likert scale (1. Meets expectations in few or no respects (MAFNR), 2. Meet expectations in some respects (MESR), 3. Meets expectations in most respects (MEMR), 4. Meets expectations in all respects (MEAR), 5. Exceeds expectations in all respects (EEAR)) (see Appendix 2).

It is a fact that, in general, EFL university teachers in Kurdistan have used technology/ICT for delivering the lesson; however, in terms of their ICT use in CL for teaching EFL is presented in the following Graphs:

5.2.1 Teachers can make use of ICT for CL in teaching EFL.

In line with Graph (36), the data present to what level university EFL teachers in Kurdistan make use of ICT for CL in teaching EFL. 25 (89.29%) of teachers MEFNR, 2 (7.14%) of them MESR, and 1 (3.57%) of them MEMR. According to this data, most university EFL teachers do not practice ICT as a tool for CL in their teaching.

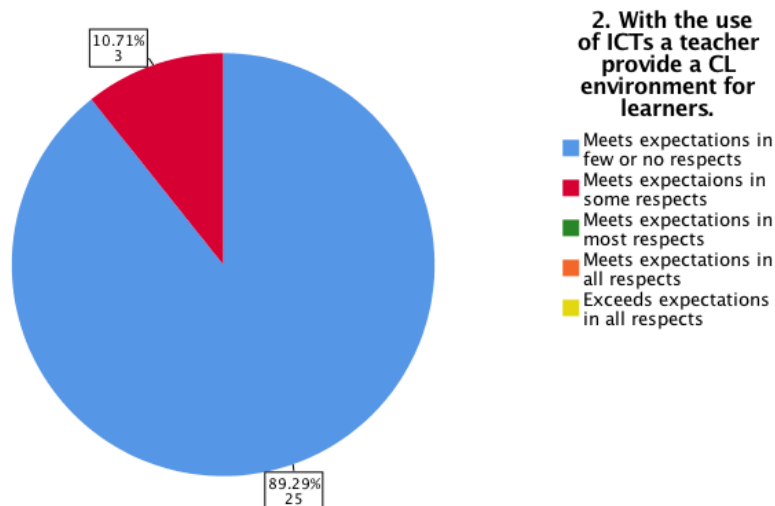
Graph 36. Teachers make use of ICT for CL in teaching EFL.



5.2.2 With the use of ICTs, a teacher provides a CL environment for learners

Graph (37) displays to what extent, with the use of ICTs, EFL university teachers provide a CL environment for learners. 25 (89.29%) of teachers MEFNR, and 3 (10.71%) of them MESR. So, only 3 out of 28 teachers, through the use of ICTs, provide a CL environment for learners. The rest of the teachers, 25 out of 28 teachers, did not use ICT for CL to figure out whether they could provide a CL environment for learners through ICT use.

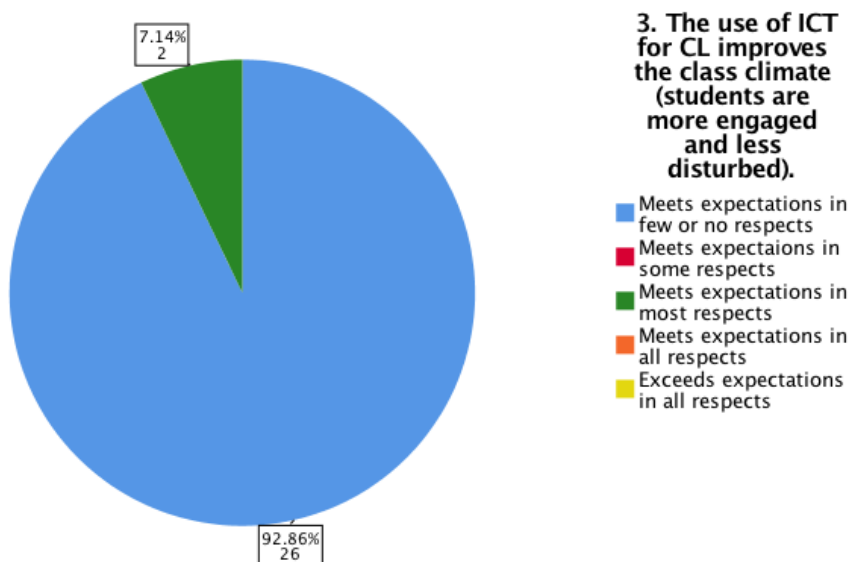
Graph 37. With the use of ICTs, a teacher provides a CL environment for learners.



5.2.3 The use of ICT for CL improves the class climate (students are more engaged and less disturbed)

Graph (38) cites the data on using ICT for CL improves the class climate by EFL university teachers. 26 (92.86%) of the teachers MEFNR while 2 (7.14%) MEMR.

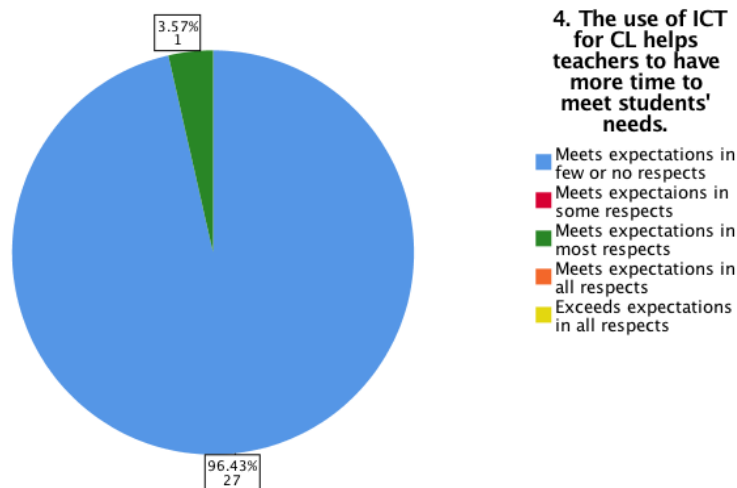
Graph 38. The use of ICT for CL improves the class climate.



5.2.4 The use of ICT for CL helps teachers to have more time to meet students' needs

Regarding the use of ICT for CL helps teachers to have more time to meet students' needs. Graph (39) shows 27 (96.43%) EFL teachers MEFNR and 1 (3.57%) teacher MEMR.

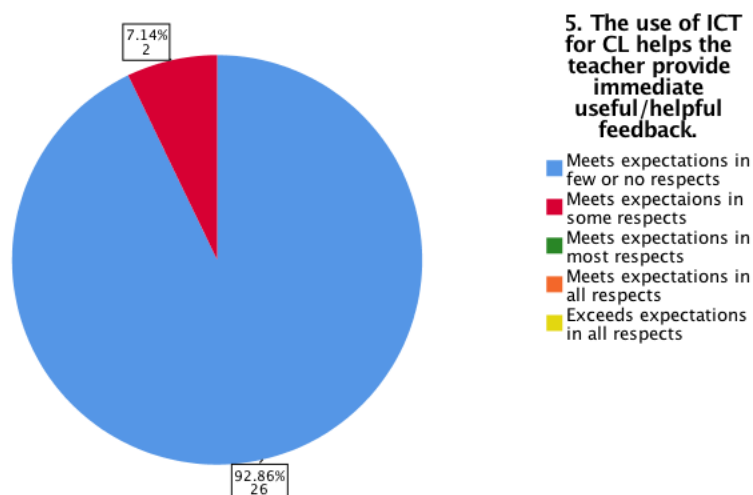
Graph 39. The use of ICT for CL helps to have more time to meet students' needs.



5.2.5 The use of ICT for CL helps the teacher provide immediate useful/helpful feedback

In regard to the use of ICT for CL helps the teacher to provide immediate valuable/helpful feedback, 27 (96.43%) of teachers MEFNR and 1 (3.57%) of teachers MEMR. See Graph (40).

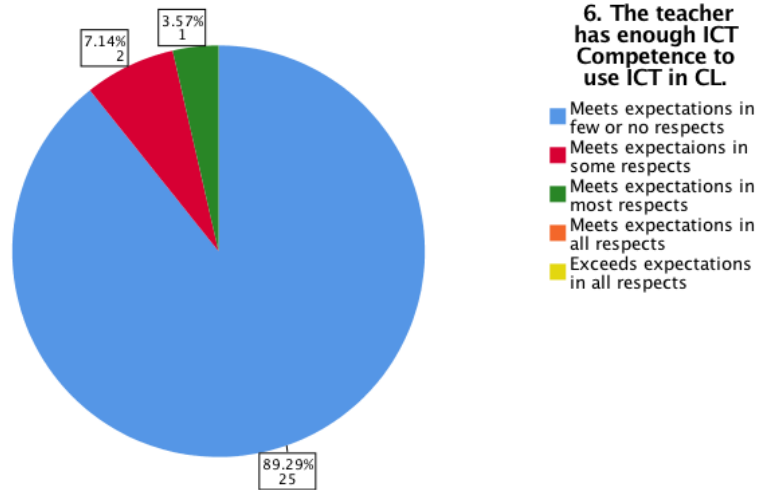
Graph 40. The use of ICT for CL helps the teacher provide immediate useful/helpful feedback.



5.2.6 The teacher has enough ICT competence to use ICT in CL

Concerning the teachers having enough ICT competence to use ICT in CL. 25 (89.29%) of teachers MEFNR, 2 (7.14%) of them MESR, and 1 (3.57%) of them MEMR. Despite the university EFL teachers practising ICT in their daily teaching, the majority of them, 25 (89.29%), did not use ICT as a tool for CL. See Graph (41)

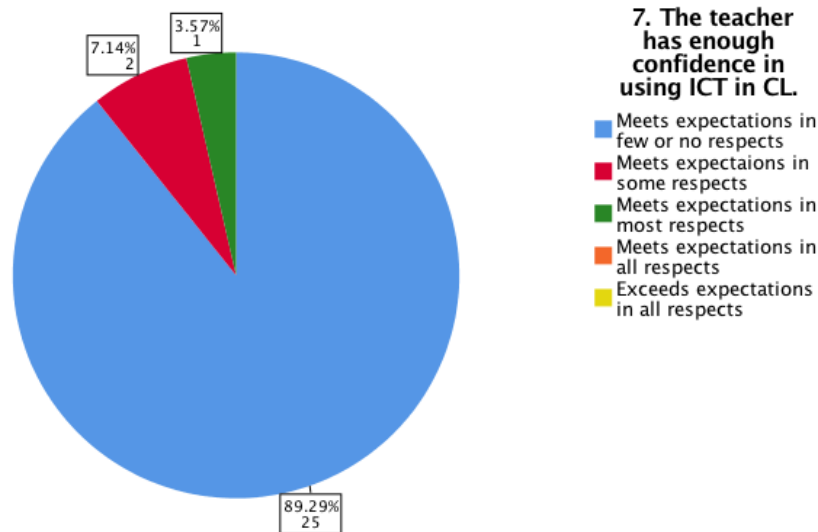
Graph 41. Having enough ICT competence to use ICT in CL.



5.2.7 The teacher has enough confidence in using ICT in CL

Graph (42) presents the data concerning the teacher's confidence in using ICT in CL. 25 (89.29%) of EFL teachers MEFNR, 2 (7.14%) of them MESR, and 1 (3.57%) of them MEMR. However, the researcher witnessed teachers' confidence in using ICT in their daily teaching, but 25 out of 28 teachers have not adopted ICT in CL.

Graph 42. Having enough confidence in using ICT in CL.

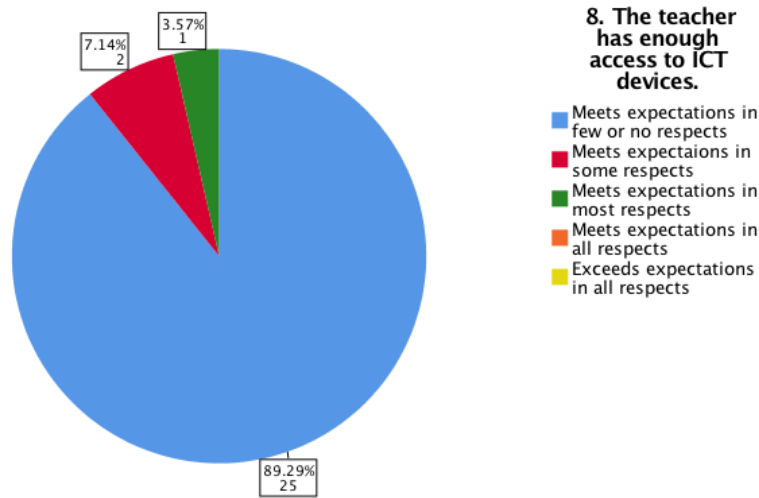


5.2.8 The teacher has enough access to ICT devices

With reference to the teachers having enough access to ICT devices. 25 (89.29%) of university teachers MEFNR, 2 (7.14%) of them MESR, and 1 of them (3.57%) MEMR. Mainly the university EFL teachers in Kurdistan bring their own laptops into the classroom to use for presenting and delivering the lessons. One of the reasons they bring their own laptop into the class is that the teachers lack access to ICT devices. So, most of the teachers 25 (89.29%) do

not have enough access to ICT devices to integrate into CL. See the Graph (43).

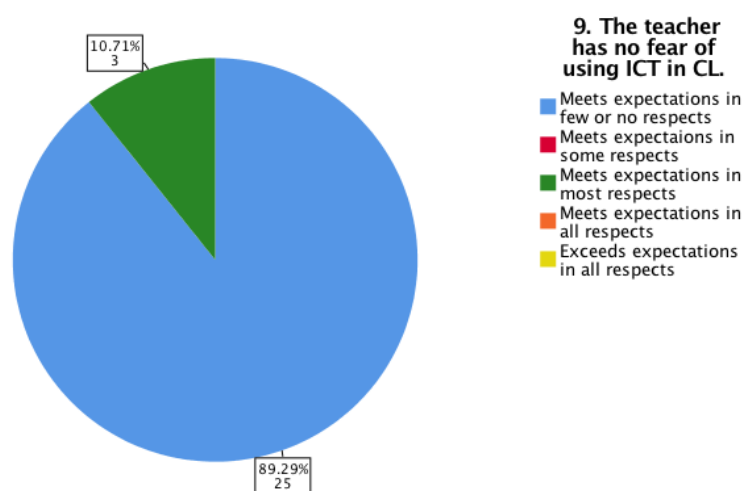
Graph 43. Having enough access to ICT devices.



5.2.9 The teacher has no fear of using ICT in CL

In line with the collected data, Graph (44) displays whether teachers are reluctant to use ICT in CL. 25 (89.29%) of teachers MEFNR, 3 (10.71%) of them MEMR. Based on the observed classes, only 3 (10.71%) of teachers used ICT in CL 25 (89.29%) of them have not used ICT as a tool in CL which may not only be a matter of being afraid of using ICT in CL, but also there may be other reasons that made them not using ICT in CL.

Graph 44. Having no fear of using ICT in CL.

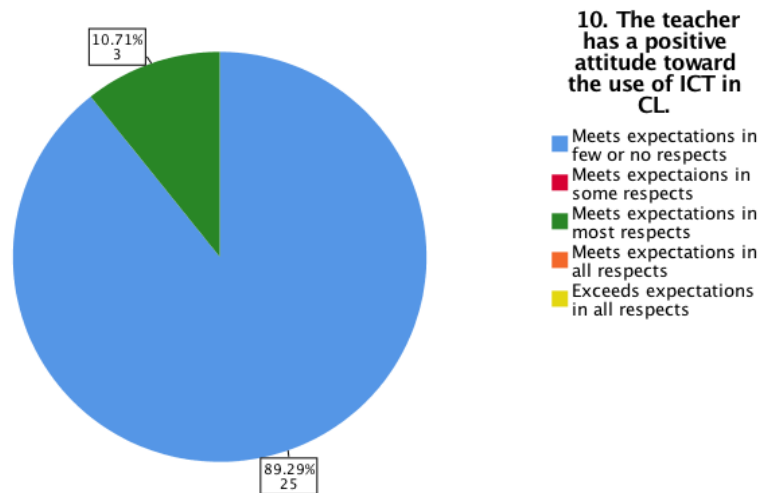


5.2.10 The teacher has a positive attitude toward the use of ICT in CL

In relation to the teachers having a positive attitude toward the use of ICT in CL, 25 (89.29%) of university teachers MEFNR, and 3 (10.71%) of them MEMR. The majority of 25

(89.29%) observed teachers not integrating ICT for CL purposes does not indicate they have a negative attitude toward using ICT in CL. As mentioned earlier, mainly the EFL university teachers use ICT in their daily teaching. Since the observer focus was on teachers' using ICT in CL, it was required to tick in the checklist as MEFNR. See the Graph (45).

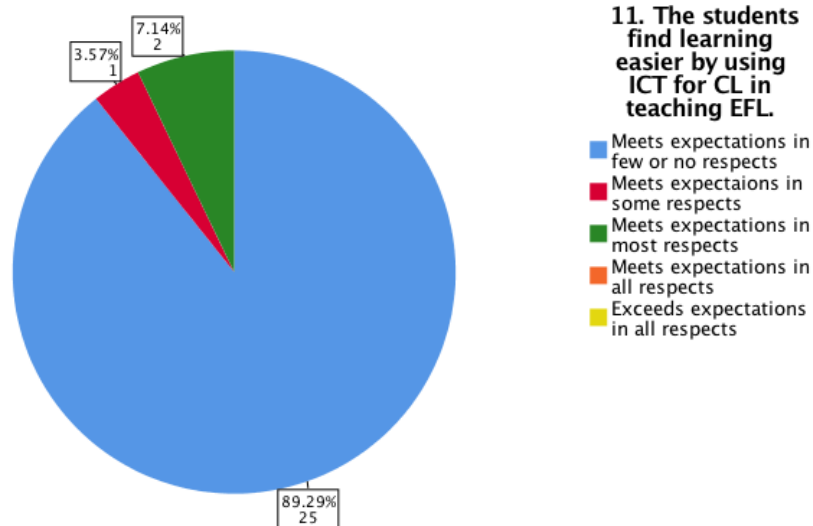
Graph 45. Having a positive attitude toward the use of ICT in CL.



5.2.11 The students find learning easier by using ICT for CL in teaching EFL

Another focus of the observer was whether the students find learning easier by using ICT for CL in teaching EFL. The students of 25 (89.29%) observed classes were MEFNR, 1 (3.57%) of them MESR, and 2 (7.14%) of them MEMR. Again, a reason for having most of the students MEFNR is the teachers' not implementing ICT for CL to determine the extent to which the students find it easier to learn. As regards those teachers who used ICT in CL, one of the teachers 1 (3.57%) in his/her class, the students find it easier to learn in some respects, and the last two teachers 2 (7.14%) use ICT in CL in their classes helped the students find it easier in most respects. See the Graph (46).

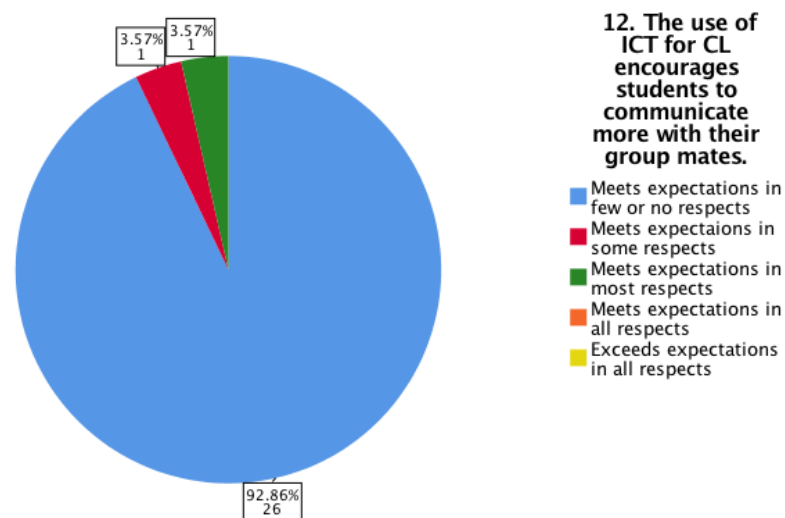
Graph 46. The students find learning easier by using ICT for CL in teaching EFL.



5.2.12 The use of ICT for CL encourages students to communicate more with their group mates.

To figure out to what extent the use of ICT for CL encourages students to communicate more with their group mates, based on the observed classes, the students of 26 (92.86%) classes MEFNR, in 1 (3.57%) of them the students MESR, and in another one 1 (3.57%) the students MEMR. See the Graph (47).

Graph 47. The use of ICT for CL encourages students to communicate more with their group mates.

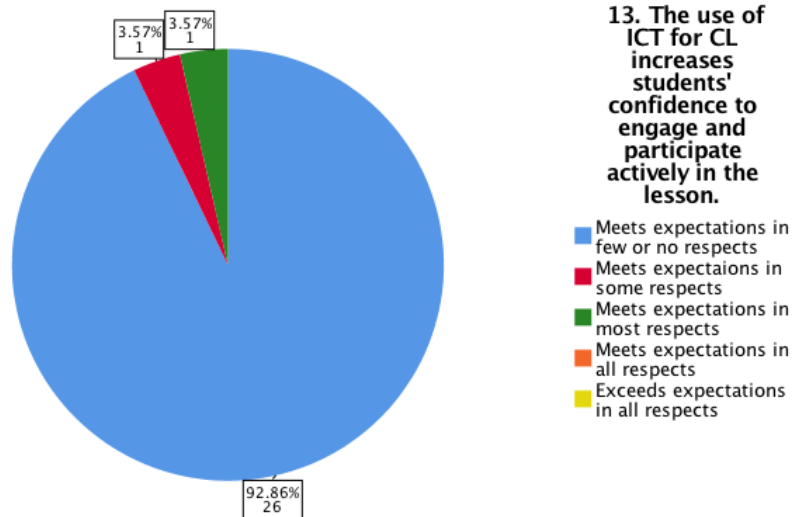


5.2.13 The use of ICT for CL increases students' confidence to engage and participate actively in lesson

Another focus to be investigated has been on using ICT for CL to increase students' confidence to engage and participate actively in the lesson. In 26 (92.86%) classes, the students

MEFNR, 1 (3.57%) of them the students MESR, and 1 (3.57%) of them the students MEMR. See the Graph (48).

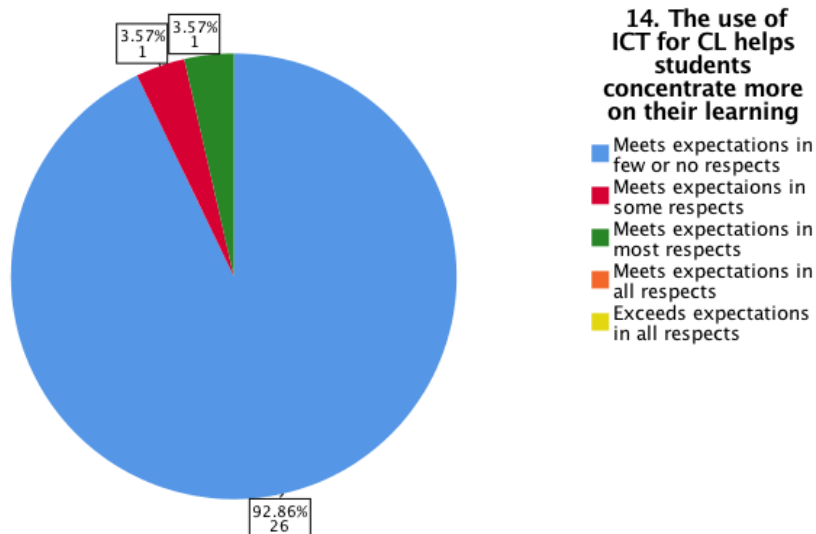
Graph 48. The use of ICT for CL increases students' confidence to engage and participate actively in the lesson.



5.2.14 The use of ICT for CL helps students concentrate more on their learning

Graph (49) displays the data regarding the use of ICT for CL helps students to concentrate more on their learning. In 26 (92.86%) classes, the students MEFNR; in 1 (3.57%) of the classes, the students MESR; and in another class, 1 (3.57%), the students MEMR.

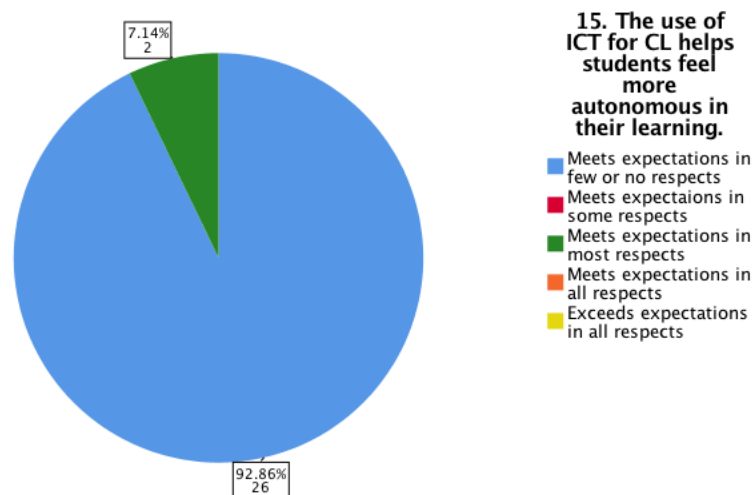
Graph 49. The use of ICT for CL helps students concentrate more on their learning.



5.2.15 The use of ICT for CL helps students feel more autonomous in their learning.

According to the use of ICT for CL helps students feel more autonomous in their learning. In 26 (92.86%) classes, the learners MEFNR, while in 2 (7.14%) classes, they MEMR. See the Graph (50).

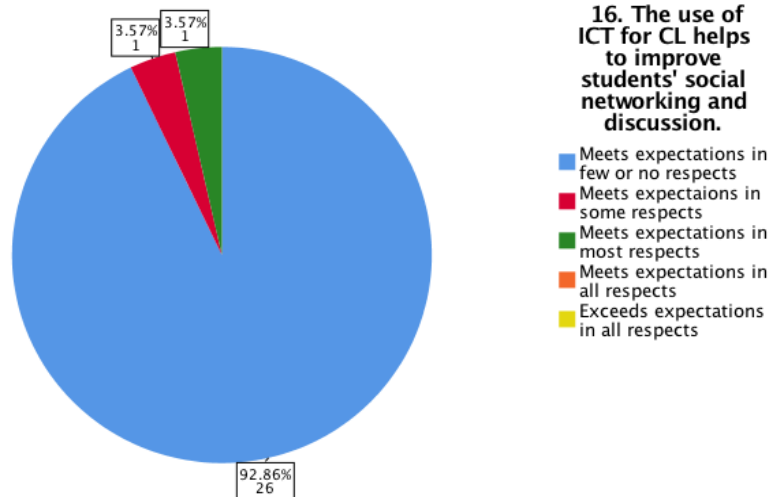
Graph 50. The use of ICT for CL helps students feel more autonomous in learning.



5.2.16 The use of ICT for CL helps to improve students' social networking and discussion

In regard to the use of ICT for CL helps to improve students' social networking and discussion, in the 26 (92.86%) observed classes, the students' MEFNR, in 1 (3.57%) of the classes, the students' MESR, and in another 1 (3.57%) class the students MEMR. See the Graph (51).

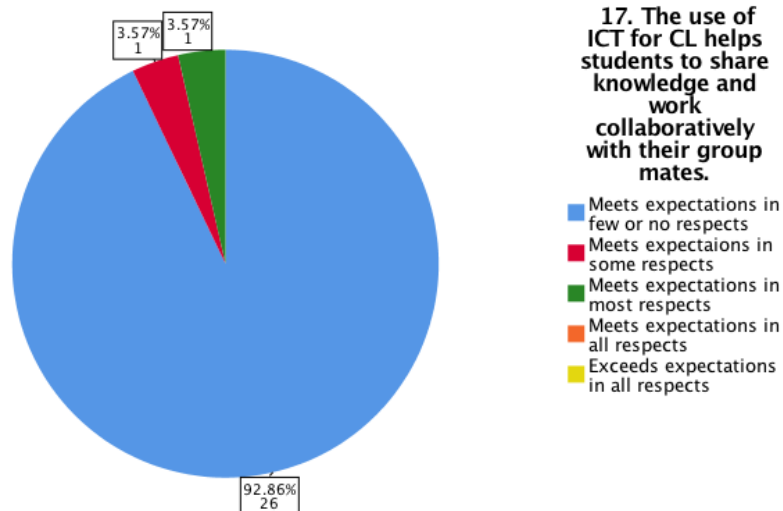
Graph 51. The use of ICT for CL helps to improve social networking and discussion.



5.2.17 The use of ICT for CL helps students to share knowledge and work collaboratively with their group mates.

In line with the use of ICT for CL helps students to share knowledge and work collaboratively with their group mates, in 26 (92.86%) classes, the students MEFNR, in 1 (3.57%) of the classes, the students MESR, and in another 1 (3.57%) class the students MEMR. See Graph (52).

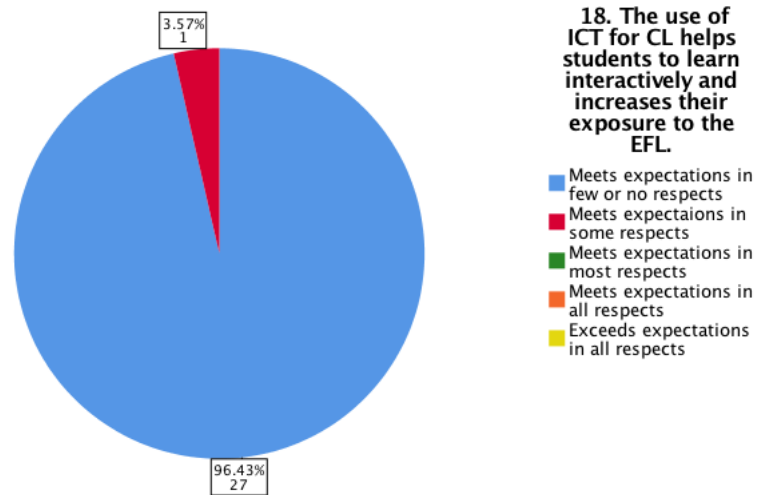
Graph 52. The use of ICT for CL helps to share knowledge and work collaboratively with group mates.



5.2.18 The use of ICT for CL helps students to learn interactively and increases their exposure to the EFL

The presented data in Graph (53) shows to what extent the use of ICT in CL helps students to learn interactively and increase their exposure to the EFL. In 27 (96.43%) classes, the students MEFNR, whereas in 1 (3.57%) class, the students MESR.

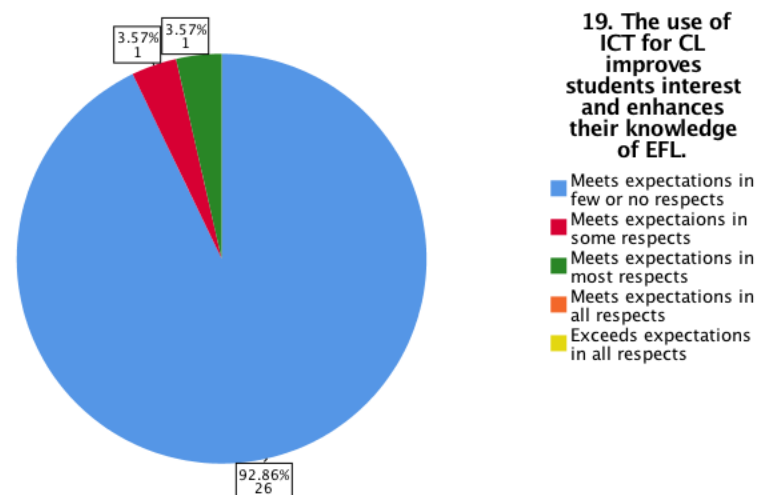
Graph 53. The use of ICT for CL helps to learn interactively and increases the exposure to the EFL.



5.2.19 The use of ICT for CL improves students’ interest and enhances their knowledge of EFL

With reference to the use of ICT for CL to improve students’ interest and enhance their knowledge of EFL, in 26 (92.86%) teaching sessions, the students MEFNR, in 1 (3.57%) of sessions the students MESR, and in another 1 (3.57%) session the students MEMR. See the Graph (54).

Graph 54. The use of ICT for CL improves students' interest and enhances their knowledge of EFL.

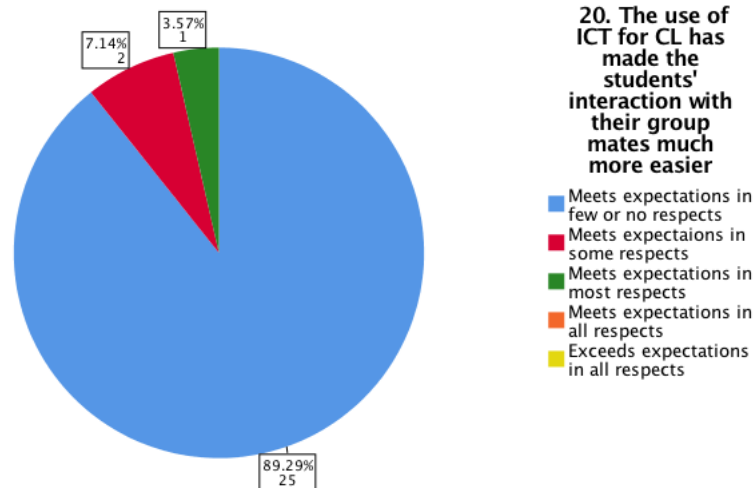


5.2.20 The use of ICT for CL has made the students’ interaction with their group mates much easier

In accordance with the collected data about the use of ICT for CL has made the students’ interaction with their group mates much easier; in 25 (89.29%) class sessions, the students

MEFNR, in 2 (7.14%) class sessions, the students MESR, and in 1 (3.57%) class session the students MEMR. See the Graph (55).

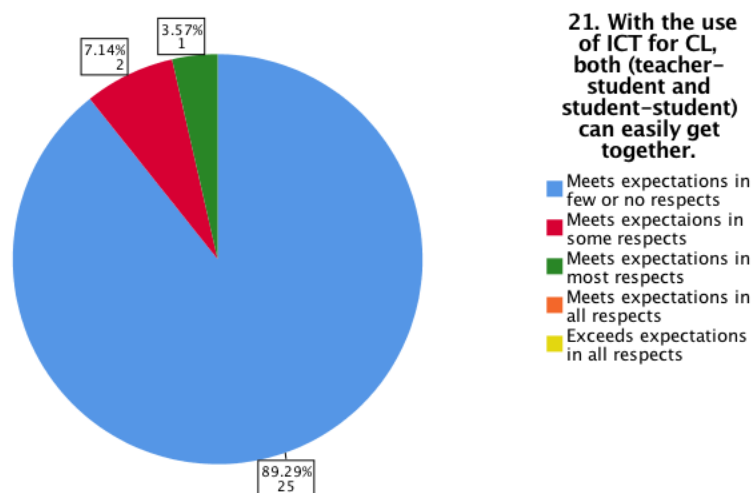
Graph 55. The use of ICT for CL has made the students' interaction with their group mates much easier.



5.2.21 With the use of ICT for CL, both (teacher-student and student-student) can easily get together

Regarding the use of ICT for CL, both (teacher-student and student-student) can easily get together; in 25 (89.29%) classes, the students MEFNR, in 2 (7.14%) classes, the students MESR, and in 1 (3.57%) of the classes the students MEMR. See the Graph (56).

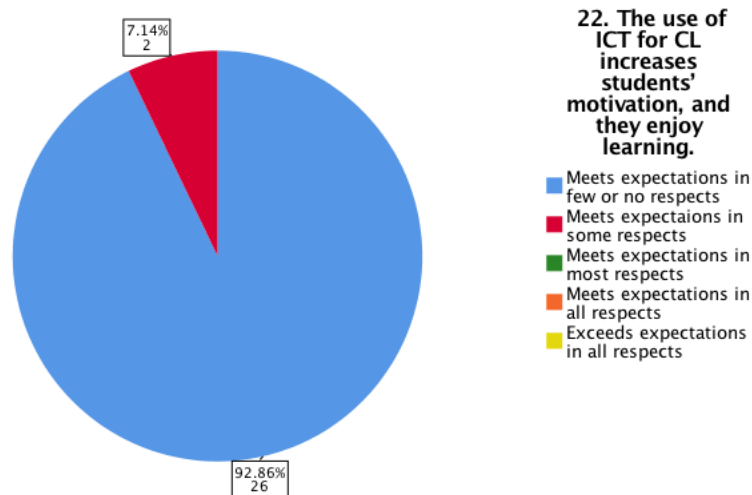
Graph 56. With the use of ICT for CL, both (teacher-student and student-student) can easily get together.



5.2.22 The use of ICT for CL increases students' motivation, and they enjoy learning

Concerning the use of ICT for CL increases students' motivation, and they enjoy learning; in 26 (92.86%) teaching sessions, the learners MEFNR, and in 2 (7.14%) teaching sessions, the learners MESR. See the Graph (57).

Graph 57. The use of ICT for CL increases students' motivation, and they enjoy learning.



Summary: Based on the aforementioned data collected through the class observation, in most of the focused points in the observation that the researcher wants to attain data about, the majority of data measures was MEFNR. The reason behind this measure does not imply that the EFL university teachers' lack of success in using ICT in CL or the uselessness of ICT in CL. On the contrary, the fact is that throughout the 28 observed classes, only 3 teachers integrated ICT in CL; the rest, 25, use ICT in their daily teaching but have not practised ICT for a CL purpose. So, the observer could not assess the teachers' use of ICT in CL while the use of ICT was not in service of CL. So, since most teachers did not integrate ICT for CL, the collected data in class observation becomes insufficient to enable the researcher to conclude the use of ICT in CL. For this purpose and to achieve deeper data regarding why most teachers do not practice ICT in CL, the research had to conduct post-observation interviews with the teachers.

5.3 Post-observation interview

Based on the achieved result of the class observation, the researcher seeks to find out the reasons behind not practising or less practising ICT in CL. For this purpose, each university teacher was interviewed again after the class observation.

5.3.1 How often do you use ICT as a tool for CL in teaching EFL?

Table 38. Teachers' responses on how often they use ICT as a tool for CL in teaching EFL.

| Always | Very Often | Sometimes | Rarely | Never |
|--------|------------|-----------|--------|-------|
| 0 | 0 | 6 | 17 | 5 |

So, in Table (38), the instructors' responses show that Kurdistan's EFL university professors rarely integrate ICT into their classroom instruction, since 6 teachers say they occasionally integrate ICT in CL, 5 of them say they never do, and 17 of them say they do so infrequently.

5.3.2 What are the reasons that make you not practice ICT as a tool for CL in teaching EFL so commonly?

In the following table, each university teacher's responses have been presented regarding the reasons behind not practising ICT as a tool in CL in teaching EFL so commonly. See Table (39).

Table 39. Teachers' responses regarding the reasons behind not practising ICT as a tool in CL in teaching EFL.

| Codes | Explanations | Barriers |
|-----------|--|--|
| T1 | Most university professors, without a doubt, have some knowledge of how to use ICT in the classroom, but it does not mean we know everything. In our university, there aren't enough ICT training classes for teachers. We require training courses to be current in terms of ICT applications and instructional approaches. Teachers must also be motivated to use ICT in the classroom. Knowing how to use ICT is useless if you are not driven to use it in class. As a result, I believe that increasing the factors that motivate teachers to use ICT is critical, such as providing a supportive environment for teachers to use ICT by providing enough ICT devices for both teachers and students, Internet access in the classroom and in the teachers' office, technical support, administration support, and enriching the teacher's promotion process in the faculty, such as writing appreciation letters for those teachers who deserve to be recognized for their achievements. | Lack of the ICT teacher training course + lack of the motivational factors to encourage teachers to use ICT in CL. |
| T2 | Unfortunately, the ICT infrastructure in our universities has received little attention. Although we have access to various electronic equipment in our classes, some of them are defective and require expert assistance to repair. We | Lack of technical support + insufficient |

| | | |
|-----------|---|---|
| | <p>have technical personnel, but they are not adequately equipped to handle any technological issues. Second, the technical instruments available to students and teachers are insufficient. For instance, our classrooms do not have computers, I normally carry my own laptop to class. Another issue is the internet connection. You cannot access the internet in class at all, regarding in our office we have 2 cords of internet it is not wireless. One of the internet sockets is worn out, the other one is not enough for a group of teachers.</p> | <p>number of ICT devices and lack of internet connection.</p> |
| T3 | <p>I prefer a more traditional approach to CL rather than incorporating ICT since properly using ICT in CL involves more time and attention than focusing on the core elements of CL, which is students learning through collaborations.</p> | <p>Traditional approach of CL is more preferable than integrating ICT with + Integrating ICT in CL requires lots of time.</p> |
| T4 | <p>I am old enough to learn about ICT applications. I'm not adept with technology, even for typing the exam questions I jot down the exam questions and hand them over to the department deputy who will type them for me.</p> | <p>Age barrier to learn ICT skills and incorporate it in CL.</p> |
| T5 | <p>On the one hand, as an EFL teacher, it is hard for me to plan a CL class that incorporates ICT. It will take a lot of time and work. On the other hand, access to ICT equipment is difficult for both lecturers and students at my university.</p> | <p>Lack of access to ICT devices</p> |
| T6 | <p>Actually, there are so many restrictions that prevent university teachers from using ICT in CL, however, personally I used a few times based on the available ICT devices in our classes or I can afford it with the students' cooperation. For instance, occasionally I ask the students to bring their laptops, Ipad, portable internet, etc. but there is a fact that preparing a lesson to integrate ICT in CL is not easy; it requires a lot of time and effort. One of the reasons for not adopting ICT for CL, as far as I know, is that teachers do not have the time to master new technology and use it in the classroom. Second, the time allotted in class is insufficient to go over the lessons using ICT tools. Third, teachers are overburdened with</p> | <p>Lack of teacher's ICT competence + Lack of time and workload + Difficulty to control and manage the class + ICT integration in CL needs lots of time and</p> |

| | | |
|------------|--|---|
| | responsibilities that include teaching. Fourth, there is a lack of ICT competence among teachers. Fifth, a lack of financial resources to purchase ICT gadgets and internet access, among other things. | work + Lack of financial support. |
| T7 | Using ICT in CL necessitates a well-thought-out plan, but I have so many responsibilities and teaching sessions that it's hard for me to prepare a lesson for CL that incorporates ICT. | Lack of time + Workload. |
| T8 | When it comes to using ICT as a tool in CL, there are numerous obstacles. As a teacher, I must consider completing the required syllabus, meeting teaching quality assurance criteria, and planning lessons for various class levels, including preparing the exam questions. In addition, I have administrative responsibilities such as managing meetings, scheduling, ensuring that the department conforms with the university laws and regulations, administering educational programs, and resolving conflicts and other issues that may arise in the departments. | Lack of time + Workload. |
| T9 | We're all aware of the impact of ICT on teaching and learning in general, as well as CL in particular. As a teacher, I can consider incorporating ICT in CL when the majority of the necessary equipment is available for my students' and I. For example, there is no internet connection in our classes, and neither teachers nor students have access to computers. So, how do I think about incorporating ICT in CL when I don't have access to the internet or ICT devices? | Lack of ICT devices + Lack of Internet connection. |
| T10 | The problem is not with the use of ICT in CL; rather, it is with the lack of pedagogical models on how to use ICT in CL, including which software to use and how to use. | Lack of pedagogical models to use ICT in CL. |
| T11 | One of the most evident issues is the lack of computers in our classrooms. If I think about it, I could ask the students to bring their own laptops, but not all of them can afford to do so. Although practically all students have smartphones, they cannot perform all tasks with them, and students have a variety of brands, mostly Android and iPhone, each with its own set of capabilities and features. Another issue is that we might not be able to do activities with all of the different sorts of smartphones. Because we do not have enough understanding about different ICT | Lack of ICT devices + Lack of teacher's ICT competence. |

| | | |
|------------|---|---|
| | devices, we get stuck when the students encounter problems with their laptops or smartphones during the exercise. | |
| T12 | I need to take training courses to learn how to use ICT in CL. | Lack of the ICT teacher training course. |
| T13 | Well, I'd say my main problem is a lack of time. I'm responsible for a lot of things. I teach both undergraduate and graduate students. Teaching students at any level necessitates preparation, which includes preparing and marking test questions. In addition, I must meet the teacher's quality assurance requirements, which include presenting seminars, writing articles, and attending seminars, workshops, and conferences. In my department and at the university level, I serve on several educational committees. We have gatherings every now and then to run educational programs. All of these tasks necessitate time, effort, and work. For me trying ICT in CL will be like an add on for my duties. Integrating ICT in CL requires careful planning. For me it will be like an additional struggle to focus on how to use ICT in CL to meet my students' needs, which I do not expect to be easy for me while I have lots of duties to meet. | Lack of time + Workload. |
| T14 | I am sure the use of ICT in CL is beneficial, but hurdles such as a lack of ICT proficiency, availability to ICT facilities, internet connectivity, training courses, and technical support are among the barriers that prevent me from using ICT in CL. | Lack of teacher's ICT competence + Lack of ICT devices + Lack of internet connection + Lack of ICT training course + Lack of technical support. |
| T15 | Our classrooms are not well equipped with ICT devices and internet connections to be able to use ICT in CL. | Lack of ICT devices + Lack of internet connection. |

| | | |
|------------|--|---|
| T16 | First, the class time is 45 minutes. If I want to use ICT in CL it takes lots of time. Second, I have a crowded classroom. I cannot control the class, focus on the students' learning, and check their work at the same time. | ICT integration in CL needs lots of time and work + Difficulty to control and manage the class. |
| T17 | My ICT knowledge is rusty. I had my teaching certifications prior to the introduction of computer education. When it comes to ICT, I'm not good at implementing technology into my classes. I haven't gone through any ICT training. The limited ICT knowledge that I know I learnt by myself. I've been teaching for a long time and have never used ICT in my classes. I don't think it's vital to use ICT in education because we can teach effectively without it. | Lack of teacher's ICT competence. |
| T18 | I don't just teach in the Faculty of Education. I am teaching English lessons in the Faculty of Economics and Engineering too. Preparing classes and marking exam papers takes a lot of time. The use of ICT in CL requires sufficient time for planning and implementation in the classroom. Personally, I do not have enough time. | Lack of time + Workload + ICT integration in CL needs lots of time. |
| T19 | It is difficult to have access to ICT resources and educational software. | Lack of ICT devices and software. |
| T20 | Lack of ICT devices, internet access, technical support, staff support, and class time. | Lack of ICT devices + Lack of internet connection + lack of technical support + lack of administrator support + Lack of time. |
| T21 | Using ICT in CL is really time consuming. First, you need to learn how the software, or the learning platform is used, then introduce it to the students to know how to use it. It | ICT integration in CL needs lots |

| | | |
|------------|---|---|
| | also necessitates a great deal of attention, managing and controlling. | of time. |
| T22 | I use technology in general, but I admit that I lack ICT expertise when it comes to CL. For CL, I need training courses to strengthen my ICT skills. | Lack of ICT competence. |
| T23 | I believe that if CL is used without ICT integration, the educational objectives can still be met. However, this does not negate the value of using ICT in CL. We all discovered the importance of ICT and its impact on succeeding and continuing the educational process during the COVID-19 pandemic. Lack of time is the most common reason for not adopting ICT in CL. We have a lot of obligations. The lack of ICT devices in our class is the second issue. Third, there is a lack of internet connection. | Lack of time + Workload + Lack of ICT devices + Lack of internet connection. |
| T24 | In my class, some students like conversing with their peers. As you may be aware, using ICT in CL necessitates sufficient teacher's attention to supervise students' work and learning. Because I usually have 30-35 students in my class, it's difficult for me to devote 100% of my focus to their work and learning. At the same time, some students take advantage of being busy with teaching and speak with their classmates instead of concentrating on their assignments. As a result, the task will not be finished as intended, and the activity will require additional class time, such as another session. | Difficulty to control and manage the class. |
| T25 | I have difficulty in using ICT in CL due to some obstacles. Such as, lack of class time, lack of computer and internet access in class, lack of quality software, and technical challenges. | Lack of ICT devices and software + Lack of time + Lack of internet connection + Lack of technical support. |
| T26 | My students are mainly elementary school teachers between the ages of 29 and 53. They use technology poorly for instructional objectives in general. The use of ICT in CL necessitates not just a teacher's ICT competence, but also that of the students. Although the teacher must prepare and plan ahead of time for the integration of ICT in CL, if I decide to use it in class, I | Lack of students ICT competence + ICT integration in CL needs lots |

| | | |
|------------|---|---|
| | must first teach my students how to use the software, which takes time. Furthermore, because my students' digital skills are lacking, I will be too preoccupied with them during the activity to remind them how to use the software. As a result, it's more like teaching ICT than EFL. | of time. |
| T27 | Integrating ICT into CL in teaching EFL requires a well-thought-out lesson plan that focuses on both students learning English language, working collaboratively and using ICT. Knowing ICT does not, in my opinion, imply being competent to use ICT in CL. To use ICT in CL, a teacher must be well-prepared and confident enough to implement it in the classroom. Despite having some ICT skills, I do not feel I am competent enough to implement ICT in CL. | Lack of teacher's ICT competence. |
| T28 | I believe that using ICT in CL for high school students is more appropriate. My students are adults, therefore any activities I choose to undertake in class can be done without the use of technology. | ICT is more appropriate for high school students. |

Summary: The following diagram summarises the teachers' responses regarding the barriers that prevent them from using ICT as a tool in CL in teaching EFL so commonly.

Each circle represents a barrier that demotivates University EFL teachers in Kurdistan to use ICT in CL widely in teaching and learning. In general, 14 barriers have been mentioned. Starting with the 'Lack of ICT devices + Software', T2, T5, T9, T11, T14, T15, T19, T20, T23, and T25 (10 out of 28 teachers) mentioned that lack of ICT devices and lack of Software is a barrier to obstruct them from using ICT in CL.

T4, T6, T11, T14, T17, T22, and T27 (7 out of 28 teachers) admit that lack of ICT competence prevents them from practising ICT in CL. Furthermore, T4 claims that his/her age is a barrier to learning ICT skills and incorporating them in CL. Additionally, T6, T7, T8, T13, T18, T20, T23, and T25 (7 out of 28 teachers) state that because of the lack of time and workload, they cannot use ICT in CL.

Regarding T2, T14, T20, and T25 (4 out of 28 teachers), they claim that the lack of technical support is a barrier to preventing them from using ICT in CL. Besides, T2, T9, T14, T15, T20, and T23 (6 out of 28 teachers) declare that lack of internet connection prevents them from using ICT in CL. While T28 (1 out of 28 teachers) thinks that ICT use in CL is more

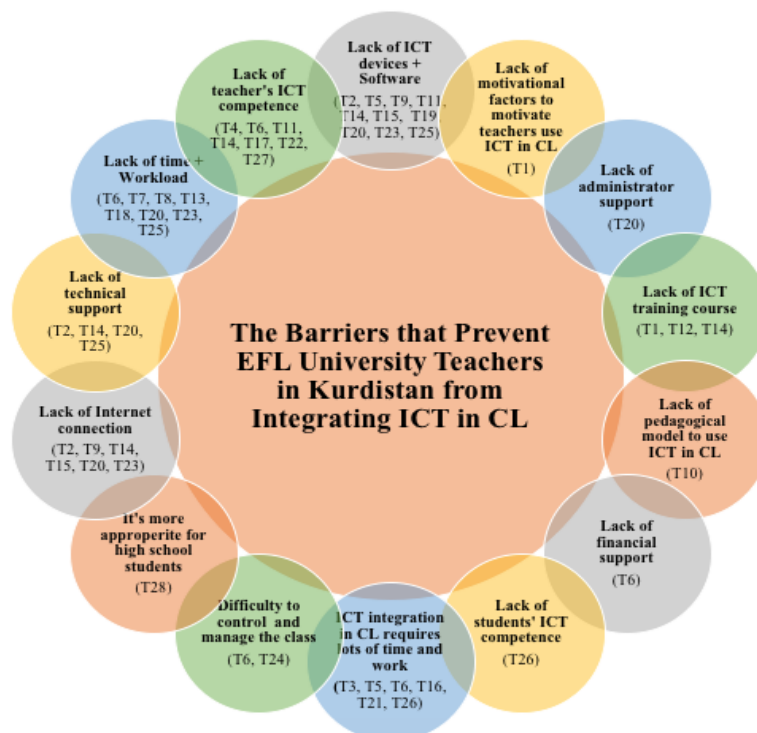
appropriate for high school students rather than university students. He/She is not practising ICT in CL in his/her teaching.

Moreover, T6 and T24 (2 out of 28 teachers) state that the use of ICT in CL causes them difficulty in controlling and managing the class during their teaching, which is why they practice ICT in CL rarely. In addition to T3, T5, T6, T16, T21, and T26 (6 out of 28 teachers), they mentioned that since ICT integration in CL requires lots of time and work, they cannot use ICT in CL in their teaching.

T26 expressed a different barrier which other teachers did not state. T26 (1 out of 28 teachers) asserted that a lack of students' ICT competence prevented him/her from using ICT in CL. Also, T6 (1 out of 28 teachers) mentioned lack of financial support as a barrier to depriving him/her of using ICT in CL. The lack of a pedagogical model to use ICT in CL is another barrier stated by T10 (1 out of 28 teachers), which obstructs him/her from using ICT in CL.

Furthermore, T1, T12, and T14 (3 out of 28 teachers) believe that the lack of ICT training courses makes it difficult for them to integrate ICT in CL effectively. Besides, T20 (1 out of 28 teachers) declare lack of administrator support as a barrier. In addition, in T1 (1 out of 28 teachers), the lack of motivational factors to motivate teachers to use ICT in CL is a fundamental factor that discourages teachers from using ICT in CL in their classrooms.

Figure 21: The barriers prevent EFL University teachers in Kurdistan from integrating ICT in CL.



Chapter Summary

This chapter presents the findings of the study's quantitative and qualitative research, which took the forms of interviews, class observations, and post-observation interviews. With the use of data analysis, the main viewpoints and experiences of the respondents on the use of ICT as a CL tool for teaching EFL and its limitations in state colleges in Kurdistan were examined. The data provided increase the body of knowledge about Kurdish university EFL instructors' training and work history regarding using ICT as a tool in CL teaching EFL.

In the following chapter, the discussion and conclusion of the study will be presented.

Chapter Six

6. Research Discussion and Conclusion

This chapter discusses the research findings and their pedagogical implications for using ICT as a tool for CL in teaching EFL at the state Universities in Kurdistan. It also sets out the study's limitations, making some suggestions for further research and research conclusions.

6.1 What are the impacts of using ICT as a tool for CL to improve EFL teaching?

To answer the above-mentioned research question, the researcher had to start with first some other questions to know the teachers' familiarity with ICT use in their teaching.

In seeking to know the EFL teachers use ICT in teaching EFL, the findings showed that out of 28 teachers, 26 (92.9%) teachers practice ICT in teaching EFL. In addition, the findings present that 28 (100%) teachers acknowledge the value of ICT in teaching EFL. Concerning whether ICT improves EFL teaching performance, 24 (85.7%) EFL university professors believe ICT enhances EFL teaching abilities. So, we can get to the point that EFL university teachers in Kurdistan have good knowledge and familiarity with ICT use in teaching. Despite their approval of the helpfulness of ICT in teaching EFL, the majority of the teachers also admit the impact of ICT on improving teaching performance.

In line with the impacts of using ICT as a tool for CL to improve EFL teaching, 13 (46.43%) of teachers SWA that ICT is a valuable tool to be used in CL. This response reflects the same statement of Piki (2008). He states that the availability of ICTs has increased communication, teamwork, and learning opportunities. Its multimedia capabilities and quick global access to information create new collaboration and knowledge-sharing possibilities. As a result, it raises interest in instructional technologies and collaborative tools (p.113). So, most EFL university teachers in Kurdistan see ICT as a helpful tool for CL in teaching EFL.

13 (46.43%) of EFL University Teachers SWA that teachers can use ICT features for CL in teaching EFL. The teachers' response can be supported by the view of Ezekoka (2015), who reports that when ICT is used in CL, people can work just as effortlessly with someone who is far away as they would with someone present. Through e-collaboration technologies, people can contribute their unique skills to group or joint initiatives without time, space, or

resource restrictions. ICT enables people to interact anytime and anywhere, but it is not meant to take the place of face-to-face contact. As a collaborative technology, ICT offers tools for managing group projects, libraries of solutions and best practices, and meta-information. It also offers tools for measuring progress and providing feedback (p.1006). Regarding the responses of many teachers, it can be seen that ICT has practical features that can be used for CL in teaching EFL.

8 (28.57%) of teachers, SWA, with the use of ICTs as a teacher, can provide a CL environment for learners. This response again can be corroborated by the Kuo, Chu & Huang (2015) claim. They assert that due to the convenience of ICT, traditional face-to-face CL has altered. Now, students can collaborate to finish their learning projects (p. 285). This indicates that with ICT, the EFL university teachers in Kurdistan can create a CL learning session for their students.

In addition, the majority of EFL university professors, 20 (11.5%) - 22 (12.6%), in Kurdistan claim that they utilize ICT in CL because it reduces the amount of time and effort needed for the lesson, fosters collaboration in the classroom, and draws students' attention to the material. Additionally, 16 (9.2%) to 19 (10.9%) of them say they use ICT in CL because it facilitates teaching, helps with lesson planning and feedback, boosts students' creativity and cognitive abilities, aids in monitoring and guiding students' learning, and fosters relationships between teacher-student as well as between students in the classroom. It also helps students become more independent and self-assured. Thus, the aforementioned advantages of ICT in CL once more confirmed its value for teaching EFL.

Overall, based on the instructors' responses, using ICT as a CL tool improves CL and EFL instruction.

6.2 What are the impacts of using ICT as a tool for CL to improve EFL learning?

Similar to the previous research question, the researcher interviewed EFL teachers in Kurdistan to obtain their opinions on CL as a method of students' EFL learning first and then integrating ICT into CL to teach EFL.

Starting with EFL, the teachers' understanding of students' learning through collaboration in small groups, T2, T3, T10, T16, T17, T19, T25, and T28 consider CL to be a valuable and effective method or approach to learning that in general, manages students' working cooperatively, which improves students' autonomy and self-confidence while also

facilitating better learning and understanding. Also, T1, T4, T5, T8, T7, T9, T11, T13, T14, T15, T18, T20, T21, T22, T23, T24, T26, and T27 emphasize their students' willingness to work in groups and the ways that CL enables them to collaborate and learn from one another while also enhancing their soft skills include time management, networking, teamwork, creative thinking, decision-making, communication, leadership, and flexibility.

We can see that the teachers' opinions are similar to those of Rao (2019a). According to him, CL can enhance a wide range of skills, including language proficiency, self-management, group management, effective planning and decision-making, higher-order thinking, leadership, presentation, organizational, coordination, and cooperation skills, as well as communication and rational thinking skills.

Moreover, 28 (100%) of the teachers believe that CL is a successful strategy for teaching EFL. 28 (25.5%) believe it promotes knowledge sharing among students, 24 teachers, or 21.8%, believe that group projects help students strengthen their critical thinking abilities. 16 (14.5%) believe it boosts students' motivation, 19 (17.3%) say it gives them a chance to share their experiences, and 23 (20.9%) say it changes how they feel about studying.

So, the instructors' responses lead us to the point that the EFL university teachers in Kurdistan have enough knowledge of the application of CL in the teaching and learning processes. They assert that CL not only improves students' learning of EFL but also increases several other crucial skills in learners, providing them with a solid foundation for the learning process and their journey throughout life.

Regarding whether ICT is suitable for CL to improve students' EFL learning, 25 (89.3%) of EFL university teachers believe that ICT is suitable for CL to improve students' EFL learning. Most teachers clearly present the proper uses of ICT in CL for improving learners' EFL learning. For instance, they think that with the use of ICT in CL, students can: converse and exchange knowledge, access a variety of websites that students can use to communicate and exchange information in the target language, learn more effectively and actively participate in lessons, advance their EFL learning since it strengthens their skills and background in the language, better equipped to develop their language skills, learn English more effectively, access to a variety of English language learning resources that help them improve their language abilities, have appropriate venues for intragroup communication and cooperation, and they can easily do extracurricular activities and homework. Furthermore, as long as students are fearless in speaking up and feel at ease, the CL constantly rises with the use of ICT. Also, the EFL teachers believe that the use of ICT in CL enables students the rapid interchange documents and

presentations, encourages students to share their expertise and increases their sense of self-esteem, helps students develop their communication skills and opens up new opportunities to interact with native speakers. Students can communicate with one another and work cooperatively. Last but not least, the use of ICT in CL is not only a practical tool for students but also for the teachers; as an example, it helps teachers set up an environment to get the students involved actively in the class and practice the English language.

Besides, the teachers' responses to some other questions regarding the impacts of using ICT as a tool for CL to improve EFL learning could guide the researcher to more precise uses of ICT in CL to progress students' EFL learning.

To begin with, 14 (50%) of EFL teachers are SWA with ICTs have enough features to make collaboration easy for both teachers and learners. The teachers' response is in line with Valcárcel, Basilotta & López's (2014) view. They state that ICT use facilitates better contact between teachers and students, which has been linked to enhanced learning. Moreover, Carrió (2007) reports that the collaborative nature of CL makes it a very effective method of instruction for all subjects. He asserts that if we implemented technological advancements into this model as they occurred, learning would also be enhanced (Valcárcel, Basilotta & López, 2014).

10 (35.71%) of teachers are SA that using ICT for CL encourages students to communicate more with their group mates. This statement can be supported by Al-Ammary's concept (2013), which asserts that OCL enables students to interact with other students whenever they choose, access a range of data sources, experience virtual travel, and improve their academic performance.

10 (35.71%) of teachers are SWA with the use of ICT for CL increases students' confidence to engage and participate actively in the lesson. The teachers' responses are in agreement with Stoytcheva's insight (2018), who believes that OCL encourages students' active participation, and the online tutor serves a vital role not only as part of the group but also as a connection between the learning group and the knowledge about the particular subject.

11 (39.29%) of teachers are SWA with the use of ICT for CL helps students to concentrate more on their learning. This response corresponds with one of the ideas mentioned in the literature review chapter. It has been assumed that the use of technology in the language classroom enables students to approach the learning process differently. To Stanley (2013), some benefits include having access to real-time information and engagement, publishing student work as a motivational tool, and relying on various functionalities that technology gadgets offer (Díaz & Toledo, 2017).

10 (35.71%) of EFL teachers are SA that using ICT for CL helps students feel more autonomous in their learning. This response is in consonance with Azmi (2017), who claims that the majority of the studies demonstrate that integrating ICT in CL into language classrooms effectively encourages learning, improves interaction and communication, fosters autonomous learning, maximizes targeted outcomes, motivates students, and aids in their improvement in the EFL classroom.

10 (35.71%) of teachers SWA with the use of ICT for CL helps to improve students' social networking and discussion. It is also stated by Becta (2008) that the use of ICT in CL provides chances for social networking, which encourages online discussion and debate among students outside of classroom hours (Ezekoka, 2015).

12 (42.86%) of them SWA that using ICT for CL helps students to share knowledge and work collaboratively with their group mates. This is what exactly has been mentioned by Johnson and Johnson (1989) in the literature. They see using technology to promote CL as essential because the advantages of collaboration in educational sectors are clear. The CL paradigm includes constructive interdependence, individual responsibility, face-to-face constructive contact, social skills, and group processing (Assinder, 1991).

10 (35.71%) of teachers SA that using ICT for CL helps students to learn interactively and increases their exposure to the EFL. This response is in harmony with the outcomes of earlier studies, which claim that OCL offers more qualities than face-to-face CL, which makes it a more effective learning strategy. OCL allows students to learn in a participatory, simulation-based, creative, and cumulative way. Additionally, it allows students to share and trade their thoughts and original digital works, opening up new avenues for supporting learning (Laurillard, 2009).

10 (35.71%) of teachers SWA with ICT for CL improves students' interest and enhances their knowledge of EFL. The teachers' responses can be supported by Harasim (2012), who sees collaborative online education as a type of learning where students are encouraged to work together to create knowledge innovatively and look for the conceptual understanding required to solve given problems (Stoytcheva, 2018).

8 (28.57%) of teachers SWA with the use of ICT for CL has made interacting among group mates much easier, leading to improving the ratings they would have obtained through individual work on the task. This response can be reinforced by Jung's opinion (2013). He asserts that online collaboration encourages knowledge co-construction, helps students participate in more extensive, complex, and cognitively demanding discussions, and creates the

richness and quality of learning experiences that lead to effective learning. The critical component of prospective online collaboration is active student-student contact to accomplish a task collaboratively in a technology-mediated setting.

14 (50%) of teachers SA that with the use of ICT for CL, we (teacher-student, student-student) can easily get together even outside of university with no barriers of time and place. The teachers' responses align with Jung's viewpoint (2013), who states that using ICT for CL allows students to exchange ideas and perspectives without being constrained by time or space.

11 (39.29%) of teachers SWA with the use of ICT for CL increases students' motivation, and they enjoy learning. The teachers' responses are in agreement with Kulik's study findings. In his meta-analysis study, Kulik (1994) pointed out that, on average, students who received ICT-based education received higher results than those who did not. Additionally, when ICT-based instruction was used, students learned more in less time and loved their sessions more (as cited in Ul-Amin, 2013).

All in all, the EFL university teachers' responses show that using ICT as a tool for CL improves students' EFL learning. However, it is worth mentioning that the use of ICT for CL in EFL lessons requires careful preparation and well-stated objectives, or else the time and effort will be in vain.

6.3 What are the barriers of using ICT with the use of CL in teaching EFL?

In this section, the barriers of using ICT with the use of CL in teaching EFL are presented with the answers achieved for each research hypothesis.

11 (39.29%) of EFL university teachers SWA that lack of Teacher's knowledge (ICT Competence) can become a barrier to using ICT effectively for CL in teaching and learning. In line with several pieces of research presented in the literature review, the teachers' responses can be supported by Ghavifekr et al. (2016), who assert that the incompetence of teachers could be one of the main obstacles to integrating technology into education. It might also be a factor in teachers' aversion to change (p. 44). So, this indicates what was hypothesized in the first hypothesis, *H1*. *In University Teachers' opinion, EFL teaching improves when teachers have enough ICT competence to use ICT as a tool for CL*, so, ICT integration in CL and EFL instruction improvement is only possible with teachers' ICT competence and vice versa.

15 (53.57%) of university teachers SWA that the lack of Effective ICT Training Courses can be a barrier to preventing teachers from using ICT in CL. It is also reported by Beggs (2000)

that one of the top three barriers to teachers employing ICT in the classroom is a lack of training. In addition, a recent study in Turkey found that teachers' lack of in-service training is a major barrier to integrating modern ICT in education (Zden, 2007), and Toprakci (2006) came to the same conclusion about the limited availability of teacher training for ICT use in Turkish schools is a hindrance (Bingimlas, 2009). Therefore, the lack of ICT training deprives teachers of UpToDate knowledge of ICT use in CL.

10 (35.71%) of teachers SA that lack of access or an insufficient number of ICT devices and software can obstruct teachers' use of ICT efficiently in CL. Different studies in the literature can reinforce this response. As an example, in Pelgrum's study (2001), in his study, he looked into the main obstacles to ICT adoption in schools from the viewpoint of practitioners from 26 different nations. He concluded that four of the top ten barriers related to ICT accessibility. These obstacles included a lack of sufficient computer units, peripherals, copies of the software, and immediate Internet connectivity (Ghavifekr et al., 2016). Thus, the teachers' responses declare what is expected in the second hypothesis, H2. *In University Teachers' opinion, EFL teaching improves when teachers have enough access to ICT hardware and software to use ICT as a tool for CL*, comes out to acknowledge that without sufficient access to ICTs to be used as a tool for CL, EFL instruction enhancement is not feasible.

11 (39.29%) of teachers SWA that a lack of teacher confidence can be an obstacle to preventing teachers from using ICT successfully in CL. The teachers' responses are in accord with several studies' findings, in the literature, including Becta's survey (2004), who expressed a particular fear of entering the classroom with inadequate ICT knowledge and their students discovering it. It was stated that instructors' encouragement to utilize ICT in the classroom is influenced by their lack of confidence and familiarity with technology (Cox, Preston, and Cox, 1999b; Osborne & Hennessy, 2003; Balanskat et al., 2006). Hence, according to the teachers' responses, we can get to the point that what is hypothesized in the third hypothesis, H.3 *In University Teachers' opinion, EFL teaching improves when teachers have enough confidence to use ICT as a tool for CL*. This indicates that teachers' lack of confidence in using ICT in CL directly has an impact on diminishing teachers' EFL teaching betterment, and the opposite is true as well.

In accordance with the teachers' responses, 10 (35.71%) teachers are SA, with teachers having technophobia (fear of using ICT) toward using ICT can be a barrier to depriving teachers of using ICT in CL. Similarly, Kareem (2017) reports that technophobia is one of the main challenges that many students and teachers encounter. Both educators and students need more

confidence in their ability to effectively use technology in the classroom. Concerning the fourth hypothesis, *H4. In University Teachers' opinion, EFL teaching improves when teachers do not have technophobia toward using ICT as a tool for CL*, the teachers' responses claim that what was hypothesized in the aforementioned hypothesis turns out to be true. Lack of fear of technology encourages teachers to practice ICT in their classrooms and helps improve the quality of their teaching, while the opposite is true.

13 (46.43%) of them SWA that teachers' resistance to change and negative attitudes toward the use of ICT can be a barrier for teachers to use ICT in CL. As it came in the literature, the most significant barriers to educational success are unfavourable attitudes, values, and actions toward ICT instruments. It has been noted that a teacher's mindset, readiness, and appropriate training are necessary for successful technology implementation (Kareem, 2017). Teachers' acceptance, attitudes, and intention to utilize ICT will impact the quality of its integration into the educational setting's system and the success or failure of its use as a learning and teaching instrument. As a result, for ICT integration to be successful and promising, teachers must sincerely desire to include it in their daily operations (Alshmrany & Wilkinson, 2017, as cited in Aziz et al., 2021). Consequently, the teachers' responses reveal the fifth hypothesis, *H5. In University Teachers' opinion, EFL teaching improves when teachers do not have a negative attitude toward the use of ICT in his/her teaching as a tool for CL.*, which appeared as expected. In other words, teachers' positive attitudes towards using ICT in CL significantly effects on improving EFL teaching.

8 (28.57%) of teachers SA and 8 (28.57%) of them NANDA that the inadequacy of ICT to meet the student's educational needs can obstruct teachers' use of ICT in CL. Some of them express that the available educational software needs to be more proper to be used for CL in universities in Kurdistan. By the same token, the software is not meet the student's needs in CL. At the same time, some other teachers contradict the aforementioned teachers' perceptions by assuming that the teachers' lack of ICT skills or the teachers' fear of using ICT is the cause of not convincing with the uses of ICT in CL. They believe that with the limited number of software, like (Google Apps and Zoom), available in their universities, teachers still use them in CL to some extent. The teachers' conceptions align with Azarfam & Jabbari's claims (2012), who were in their study asked different groups of teachers regarding the use of ICT in their teaching. Some of the group see the software as excessively slow, lacking sufficient language support, and overly mechanical. While a group of teachers still have reservations and acknowledge that using computers has some benefits, such as allowing students to interact with one another or improving writing skills, they have yet to be convinced of any additional

advantages. As a result, according to the number of teachers whom SA with the inadequacy of ICT to meet the student's educational needs can obstruct teachers' use of ICT in CL, it can be predicted either the teachers' lack of knowledge about the ICT integration in CL or the teacher's resistance to incorporating ICT in CL is a reason behind having such viewpoints.

SA 11 (39.29%) of teachers SWA that lack of technical support can be a barrier for teachers to practice ICT in CL. As we know, technical problems always obstruct teachers from using any technological devices. For instance, in Becta's study (2004), many participants admitted that technical difficulties would discourage them from adopting ICT in their classrooms out of concern for equipment failure in the middle of a lesson (as cited in Ghavifekr et al., 2016). Likewise, T2, T14, T20, and T25 state that even though they have access to a variety of electronic devices in their lessons, some of them are broken and need professional help to be fixed. In addition, although they have technical staff, they must be better equipped to deal with technological concerns. So, there is no doubt that lack of technical support and technical problems in CL classes be a barrier for teachers to use ICT.

10 (35.71%) of them were SWA that a teacher's lack of time is a barrier. T6, T7, T8, T13, T18, T20, T23, & T25 assert that one of the reasons ICT for CL has not been adopted is that instructors lack time to learn new technology and implement it in the classroom. Second, there needs to be more time in the class period to cover the material utilizing ICT resources. Third, it is important to have a plan in place before incorporating ICT into a CL lesson, but because they have so many commitments and teaching sessions, it is difficult for them to do so. Fourth, they have to think about finishing the necessary curriculum, fulfilling the standards for teaching quality assurance, and organizing lessons for different class levels, including creating test questions. In addition, some of them were in charge of managing meetings, scheduling, ensuring that the department complies with university rules and legislation, running educational initiatives, and resolving disagreements and other issues that could arise in the departments. Thus, they do not have enough time to design a CL class with ICT integration. Fifth, they claim that they do not have enough time. Adequate time must be allotted for planning and implementation of ICT in CL in the classroom. The teachers' opinions are in accordance with Becta's study (2004), which states that teachers struggle with a lack of time in many aspects of their work, which interferes with their capacity to accomplish tasks. Some instructors specifically mentioned which ICT-related duties take up the most time. These include the time spent researching online advice, planning classes, experimenting with and perfecting the

technology, resolving technical challenges, and receiving appropriate ICT training (Ghavifekr et al., 2016).

10 (35.71%) of teachers SA with the lack of administration's support in using ICT for CL can be an obstacle for teachers to demotivate them in using ICT in CL. To illustrate, one of the instructors (T20) claims that lack of staff and administration support is among other barriers of using ICT in CL. Administration support is one of the motivational factors that provoke teachers to take a step forward in integrating ICT in class in general. However, the abovementioned barriers, lack of backing from the staff and administration can be another obstruction to demotivating teachers to use ICT in CL classes.

11 (39.29%) of them SA that inadequate space and infrastructural facilities can be a hurdle for teachers to apply ICT in CL in their classes. As observed in the observation sessions, it is fitting that there were a few technological devices in most universities in Kurdistan. However, the problem is that some of them are defective or outdated and need to repair or replacement. Another issue is the technological tools, including the hardware and software, which are not affordable enough for teachers and students in the universities of Kurdistan. T2, T5, T9, T11, T14, T15, T19, T20, T23, & T25 declare that the technical instruments available to students and teachers are insufficient. For instance, teachers typically carry their laptops to class in classrooms that do not have computers. This is again due to the lack of budget, which needs to be dedicated by the government in Kurdistan. T6 also affirmed that insufficient funds to procure ICT equipment and internet connectivity, among other reasons, deprive teachers of integrating ICT in CL classes.

10 (35.71%) of teachers have SA that a lack of coordination and management systems can be a barrier to the utilization of ICT in CL. There is a fact that in the universities of Kurdistan, less attention was paid to coordination and management systems, especially in terms of assisting instructors in the classroom, monitoring ICT improvement in classrooms, or providing ICT training for instructors. There are no dedicated specialized people in the majority of universities of Kurdistan to check the status of ICT use in university classes, the teachers' needs concerning ICT training, and the availability of adequate technological equipment in classes. So, as a researcher not surprised if a lack of coordination and management systems is an obstacle in front of the Kurdistan EFL university teachers to use ICT in CL.

8 (28.57%) of them SWA, 8 (28.57%) of them NANDA, and 8 (28.57%) of them SWDA that ICT use and ethical issues to be problematic in front of teachers to use ICT in CL. Maintaining technological equipment safely and avoiding using the internet in an immoral

manner is crucial. A few teachers noted that, regrettably, they previously encountered a few students who damaged the VGA (Video Graphics Array) cable to prevent some teaching sessions. This issue is in accordance with Suryani's findings (2010), who reported that many learners do not care how to carefully handle and use computers so that they work for them longer. They will need to regularly spend a sizable sum of money on new computers if EduSets do not resolve this issue. For this purpose, it is necessary reminding the users at the university to some moral characters to use ICT devices so that they can endure longer attentively.

10 (35.71%) of teachers SWA that the mismatch between ICT implementation and the educational setting's culture can be a barrier to preventing teachers from deploying ICT in CL. Some instructors mentioned that while, generally speaking, we have not experienced this issue, there is still a chance we could. Since each of the cities in the Kurdistan region has a distinct culture that is different from others, integrating ICT in CL classes requires a suitable design to align with the culture of the EduSets to avoid any hurdle during the integration of ICT in CL. Every technology has a unique intrinsic value, as Hodas (1993) reports. In light of this, the success of technology deployment in one EduSet does not imply that it will be successful in other EduSets. The new software and hardware should be compatible with EduSet's culture, and the EduSets themselves should have an adaptable culture.

10 (35.71%) of them SWA that the mismatch between ICT and curriculum can be an obstacle to teachers to discourage them from practising ICT in CL. According to T3's responses, Kurdistan's universities primarily follow a standard curriculum. Even if their curriculum has undergone numerous reconstructions and improvements, no curriculum is specifically geared to highlight how ICT is applied in the classroom. For instance, T10 asserted that the absence of pedagogical models on how to utilize ICT in CL, including which software to use and how to use it, is the problem rather than the use of ICT in CL itself.

As a result, the responses from the university professors revealed that each of the obstacles, as mentioned earlier, could limit teachers from using ICT in CL.

6.4 How can we eliminate the barriers of using ICT with the use of CL in teaching EFL?

6.4.1 EFL University teachers' dealing with the barriers of using ICT in CL class

This section presents the teachers' suggested strategies to overcome the challenges and succeed using ICT for CL in teaching EFL.

T1, T2, T3, T5, T6, T8, T9, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26 & T27 based on their experiences with ICT use in general and as a tool in CL, they recommended a variety of ways for dealing with ICT problems and successfully using it in CL throughout EFL teaching.

T2 see that sending out the link or whatever will be helpful to students exceptionally early so that everyone may access it before class, preventing the internet barrier. Alternatively, CL's activities can be split into two categories. Some of them must be completed in class, while others must be completed in groups using ICT at home. This approach is practical for dealing with the issue of poor internet connectivity in courses, which has already been brought up by most of Kurdistan's university professors. Teachers can also do both face-to-face CL and OCL at the same time using this method. Additionally, it gave certain students a chance to have a mentor who watched over their work and helped them understand the assignment when they encountered difficulties during OCL sessions.

T3, T9 & T23, teachers' confidence in utilizing ICT increases as they increase self-ICT competence. To move forward and continue teaching, it is necessary to stay calm and unworried when they encounter problems while integrating ICT. Then looking for the cause of the problem after class so they can recognize it the next time it occurs and know how to fix it. Alternatively, T20, T23 & T24 asserted that through asking friends for advice or looking up a YouTube video to learn how to solve the issue in the future. This strategy is appropriate for teachers who find it challenging to integrate ICT in CL due to a lack of ICT competency. With this strategy, teachers may manage their anxiety over using ICT unsuccessfully, and each time they examine the reasons why it helps them gain more knowledge and confidence about using ICT in CL.

T5 & T8 claim that they rely on their personal technology and internet connection rather than the university's technological infrastructure. This method of dealing with the difficulty of a lack of internet connection and ICT gadgets may be effective to some extent, but it remains to be seen whether all teachers can afford to bring their own technology and an internet

connection to the class. What about using the brought internet in a crowded class? Can every student successfully utilize the same internet? What about the portable internet's speed? The researcher believes this approach can be used occasionally when students already have access to laptops, but regrettably, not all teachers will find it compelling.

T6 also recommend switching platforms to meet the demands of the learners, learning more about the application of ICT and teaching the students how to use the ICT equipment. Sometimes the issue is that the learning platform or software fails to support students in learning. So, the teachers can try to search for and use software that is both user-friendly and suited to student learning. If a student has never used the software before, it would be best if the teacher showed them how to use it; otherwise, they would easily give up learning. In addition, T14 is proposed to encourage students to learn more about the system of ICT integration in CL and finish the assignments because, occasionally, the students can be a hindrance. Students occasionally are not sufficiently cooperative with the teacher and their fellow students in completing the work since ICT integration in CL is not a usual way to be adopted by teachers.

Some teachers (T1, T9, T12, T16, T18 & T27) have different ways of dealing with the ICT barriers. They all focus on how to deal with ICT competence. To illustrate, T9 makes it a point to read about ICT implementation before implementing it so that the teacher can solve any problems that may arise. This indicates that the teachers need good preparation before practising ICT integration. Similarly, T27 believes that teachers can improve their ICT skills through good video tutorials on using different learning platforms, like Google Meet, Google Classroom, and other online ICT uses.

Furthermore, T16, as teachers, we must stay current due to the quick advancement of technological programs. The teacher will run into issues if he/she cannot stay current. Also, T18 instead of employing conventional teaching techniques, educators should focus on honing their ICT abilities. What both T16 & T18 call for is that teachers need to concentrate on innovative teaching methods, stay current with technology, and simultaneously develop their ICT abilities. Moreover, T1 & T2, taking ICT training and not being hesitant to use its benefits. They signify that it is important not only to participate in ICT courses but also to have the courage to practice it in class because some teachers have ICT knowledge but are still afraid of using it.

In line with T11, the barriers of ICT integration in CL can be dealt with by motivating instructors and students to use ICT to prepare their lectures and homework. It can be the cause

of the barriers are the teachers or the students who need to be better prepared to use ICT in CL. Moreover, enough ICT equipment should be provided in the lecture hall. Generating interest in newly released software, such as Slack, Discourse, Sloid, and others. Lack of ICT equipment in classes can be an obstruction. Thus, affording enough interesting technological tools and software to students is the solution to deal with this issue. Furthermore, to encourage students to work together and have discussions using appropriate software, assign particular homework using ICT. Finally, please work with the administration to find solutions to barriers beyond the teachers' ability to manage them.

T13, "I had to ask the students to bring their own laptops to the class so that we can still practice what was supposed to be practised. I also had to provide an internet connection myself and clean the area then rearrange all the computers for those students who cannot afford laptops that still worked. I brought in an IT team to help me fix the computers in my faculty". It is a fact that we need assistance from students, administration, and staff whenever we need it as teachers. The researcher thinks that soliciting the assistance of the learners is a great idea. The support they are given is for their learning and successful instruction. It is important to note that the learners are content while their teachers value them as a support resource. Therefore, encouraging students to bring their laptops is the most straightforward approach to fill the gap left by defective or lack of computers.

T15, T25, T24 & T26 state that a good teacher should be prepared for obstacles and have a backup plan to continue the teaching session. If unable to deal with the ICT challenge, T25 prefer postponing the ICT integration activity so that it could be completed at home or the library and then moving on to something else, as T26 mentioned. Teachers should always have plan B in place if they face unforeseen difficulties. Additionally, how a teacher handles challenges is quite crucial. For example, like T24, T25 and T26, the teacher can adjust his/her strategy or plan and continue teaching while remaining calm and unconcerned.

T19 has various methods of managing the ICT barriers in a CL class. For instance, collaborating with the department to eliminate obstacles; finding the available ICT tools and making appropriate use of them; increasing my proficiency with ICT tools; Establishing norms and rules to prevent ethical issues. Each of these strategies has its own impact on facing the barriers. In order to solve issues, it is crucial for the administration and teachers to work together effectively since, without any of them, the other would struggle to succeed. As T19 stated, it is wise for teachers to utilize the ICT equipment that is accessible. Even if the technology is outdated, we might be able to use it in a way that helps students learn. Another efficient

technique to assist the instructors in managing the ICT challenges is to increase their ICT knowledge. Establishing standards and guidelines is the best way to address ethical issues.

T20, to avoid any potential technical difficulties, try to utilize any technological gadget before utilizing it and look for an explanation on YouTube. By doing this, the teacher may get help to avoid obstacles like a lack of ICT understanding and confidence. In contrast, T22 has another way of dealing with ICT issues. Be present in the classroom 15 minutes before the planned start time. Looking at the data shows projector or any other equipment is going to use. Make an effort to handle any technological concerns on your own in case of a problem. Ask the IT staff for help if you need help to do so. The strategies each of T20 & T22 uses to reflect the teacher's love toward their teaching. It demonstrates how hard they strive to make their instruction effective. As was already indicated, one method for avoiding ICT hurdles is for teachers to be well-prepared before classes.

Thus, University EFL instructors described the strategy they employ to deal with challenges when using ICT in CL in their lessons. The following section will present EFL teachers' further suggested strategies to overcome obstacles and succeed in using ICT for CL in EFL teaching.

6.4.2 EFL University teachers' suggested strategies to be adopted to manage the challenges and succeed in using ICT for CL in teaching EFL

University teachers (T1, T2, T3, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T18, T19, T20, T22, T23, T24, T25, T26 & T27) based on their experiences with ICT use in general and as a tool in CL, they proposed a variety of ways to be used to manage the ICT issues and successfully use it in CL throughout the teaching of EFL.

T1, T6, T7, T10 & T16 having a Contingency plan. Continuously updating the teachers' and students' ICT knowledge helps make ICT integration in CL more promising. For instance, by providing courses that will introduce instructors and students to the potential applications of ICT for CL and offer appropriate training for its use. In addition, T1 suggests providing more ICT equipment, improving internet connectivity, and providing technical help, all of which are

influential factors in motivating teachers and students to practice ICT in teaching and learning and diminishing ICT barriers in CL.

T2 & T3, having enough support from the administration. The administration should boost ICT use more, setting aside funds and space to provide ICT resources for both teachers and students and offering instructors regular ICT training programs.

Both T5 & T8 assert that teachers should encourage themselves or work independently to improve their ICT skills. To illustrate, T5 suggests enrolling in training programs and advancing oneself technologically. T8 proposes that teachers' self-esteem and self-drive motives are essential for increasing ICT use in the classroom. Teachers' innate motivation to incorporate ICT in CL is one of the crucial factors that provoke teachers toward ICT use and face its challenges.

T9 recommends that in any EFL situation, the flipped classroom method is necessary to foster a collaborative environment in the classroom. He/She believes that the flipped classroom is one of the beneficial methods that EFL university teachers in Kurdistan can make use of—returning to teachers' responses regarding the barriers of using ICT in CL classes. Many teachers mentioned that lack of internet connection and ICT devices in class are among the obstructions. So, as T2 (see p. 216) stated, dividing the activities while facing the ICT challenges, part of them to be done in class and the other in the group to be done online at home. This technique can be implemented similarly in flipped classrooms. Hence, teachers will be able to overcome the ICT difficulties in CL and simultaneously deploy ICT use in CL, whether in the classroom or at home.

T10 suggests modifying the attitudes of both instructors and students toward using ICT in the teaching and learning process. Teachers' attitude has a significant impact on the use of ICT in CL. Still, some teachers do not generally have a positive attitude toward ICT use. This causes a lack of ICT integration in the classroom. Therefore, improving the teachers' attitude towards ICT use in CL is a necessary step to consider.

Moreover, most teachers face difficulty applying ICT in CL due to a lack of class time. For this purpose, T19 suggests that “teachers should be sensible in the amount of time with the use of ICT in EFL”. So, this helps the teachers to manage the use of ICL in CL more effectively under reasonable time constraints.

T11 recommends motivating teachers and students to use ICT in preparing their lectures and homework; the lecture hall should have adequate ICT equipment; raising awareness of cutting-edge technologies like Slack, Discourse, Mural, and others, assigning particular tasks

using ICT to encourage students to collaborate and have conversations using the relevant applications, and teachers and administration cooperating to manage the ICT challenges during CL classes.

T12 suggests teachers have fewer teaching hours and less crowded classes. As we know, ICT integration requires enough time and effort from teachers and teachers' having lots of teaching hours cause teachers' lack of time to be dedicated to ICT integration in CL. Furthermore, it may not be easy for teachers to handle several classes, especially with many students. Due to ICT use in CL needs guiding and monitoring each group's work, the class time and the teacher's capability may not help ICT integration in CL work effectively.

In line with T13, the first and foremost step that universities should take is to oversee technology use. Additionally, both T13 & T3 assert supporting and motivating teachers to use ICT, at least in some of their lectures. One key element in promoting ICT use in CL is teachers' motivation. Teachers who successfully integrate ICT into their lessons and advance the state of teaching and learning should be recognized and promoted. As a result, other teachers began to practice ICT integration in CL and pay attention to its positive aspects.

T3 suggests modifying the curriculum. Although the curriculum has been updated and changed numerous times, it has yet to be created in a way that allows for the integration of ICT. This curricular adjustment could encourage instructors to improve their usage of ICT in CL. Additionally, T16 proposes that the faculty and teachers need a management system for integrating ICT in CL and in general and in EFL teaching. Having the management system attract the attention of both administrator and teachers to cooperate and work hand in hand for the success of the system ICT integration CL and teaching in general. For example, T20 suggests providing teachers and students access to sufficient modern ICT resources, offering adequate technical assistance, and offering dependable ICT teacher training programs.

T14, it is best if we use computers more frequently. Inquiries about what we need to know must be followed up on. Alternatively, we can watch YouTube while hundreds of individuals resolve current problems. According to the T14, teachers should work independently to advance their ICT skills. Effective teachers are always much more active in enhancing his/her ICT skills than waiting for the administrator to arrange the ICT training sessions for them. In addition, thanks to video makers on YouTube, it is a fact that the improvement in technology made it easy to find solutions to many of the ICT technical problems that we face during teaching.

Moreover, T18 suggests that teachers should avoid being overly ambitious and instead

set realistic goals corresponding to the ICT resources at hand. There is, however, always room for development. He/she recommends that educators are urged to stay current, particularly over the summer. They can participate in an online course and advance their careers. Online courses are an additional option for enhancing ICT skills. For instance, the faculty may set up such online courses, or occasionally teachers may assist one another. To provide an example, certain teachers who have already participated in ICT training programs may be able to arrange an online course for their colleagues to help.

Both T22 & T24 suggest having access to adequate financial, educational, administrative, technical, and in all classes access to the internet and various ICT facilities. In addition to offering courses to teach teachers and students how to use various software.

T15, T23 & T25 think instructors will greatly benefit from ongoing training sessions on handling ICT technical issues and courses to expand their knowledge of the field and effectively use the technology.

T26 suggests teachers having a backup plan, but at the same time, he/she reminds the teachers that a backup plan does not save the activity if they choose to utilize a video. So, teachers need to have a backup plan; however, this does not fix the technical issue immediately; instead, they start with another activity to save class time. T26 draw our attention to the usefulness of a backup plan to save class time, while it may not always work. So, teachers should be relaxed when they cannot deal with a technical problem. Then, they should always remember that the backup plan is to save the class time; it is not necessary to fix the technical problem.

T27 suggests that teachers still practice the knowledge and skills acquired through the pandemic regime with ICT tools for CL in teaching EFL when there is no pandemic. What was intended to be said here is that teachers should apply the ICT knowledge and skills they have acquired in CL not only when they are required to but also when they can benefit students' learning. For instance, practically every teacher had to deliver lessons to students online during the pandemic. As a result, they had to assign numerous tasks to be completed and practice various activities. Although it was much work, most teachers were able to learn how to teach online and handle it. T27 suggests that teachers continue using ICT in CL even after the epidemic instead of discontinuing it.

In conclusion, based on their expertise with the difficulties posed by ICT in CL, each Kurdish-EFL university lecturer proposed a different approach. There is a fact that each educational setting requires a particular approach in order to employ ICT in CL and address its

obstacles properly because they may have different problems. It is significant to find the causes of the problems and select the best tactics to handle them. Administrators and teachers may need to work together to tackle some problems, while administrators or teachers alone may be able to solve others. Therefore, with everyone sharing the duty of handling the ICT issues, everyone will find it simple to resolve and successfully integrate ICT in CL.

6.5 Further Findings

6.5.1 Class observation

To have a deeper understanding of the use of ICT in CL in EFL university classes in Kurdistan, the researcher conducted class observation sessions with the interviewees. According to the data collected, most of the data measures were MEFNR (See Table(s) 40). The reason behind this measure does not indicate the lack of success or ineffectiveness of ICT in CL among EFL university lecturers. Contrarily, only three of the 28 instructors in the observed classrooms used ICT in CL; the remaining 25 teachers utilize ICT in their regular teaching but have yet to use it specifically for CL. Therefore, the data gathered during class observations need to be sufficient enough for the researcher to reach a judgment regarding the usage of ICT in CL because most teachers did not integrate ICT for this purpose. By the same token, post-observation interviews with the teachers were required to get more in-depth information about the causes of the majority of teachers' lack of ICT use in CL.

Table(s) 40. Class observations' collected data.

1. Teachers can make use of ICT for CL in teaching EFL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectaions in some respects | 2 | 7.1 | 7.1 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

2. With the use of ICTs a teacher provide a CL environment for learners.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectaions in some respects | 3 | 10.7 | 10.7 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

3. The use of ICT for CL improves the class climate (students are more engaged and less disturbing).

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectations in most respects | 2 | 7.1 | 7.1 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

4. The use of ICT for CL helps teachers to have more time to meet student's needs.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 27 | 96.4 | 96.4 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

5. The use of ICT for CL helps the teacher to provide immediate useful/helpful feedback.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectaions in some respects | 2 | 7.1 | 7.1 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

6. The teacher has enough ICT Competence to use ICT in CL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectaions in some respects | 2 | 7.1 | 7.1 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

7. The teacher has enough confidence toward using ICT in CL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectaions in some respects | 2 | 7.1 | 7.1 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

8. The teacher has enough access to ICT devices.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectaions in some respects | 2 | 7.1 | 7.1 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

9. The teacher has a no fear of using ICT in CL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectations in most respects | 3 | 10.7 | 10.7 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

10. The teacher has a positive attitude toward the use of ICT in CL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectations in most respects | 3 | 10.7 | 10.7 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

11. The students find it easier to learn by using ICT for CL in teaching EFL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectaions in some respects | 1 | 3.6 | 3.6 | 92.9 |
| | Meets expectations in most respects | 2 | 7.1 | 7.1 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

12. The use of ICT for CL encourages students to communicate more with their groupmates.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectaions in some respects | 1 | 3.6 | 3.6 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

13. The use of ICT for CL increases student's confidence to engage and participate actively in the lesson.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectaions in some respects | 1 | 3.6 | 3.6 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

14. The use of ICT for CL helps students to concentrate more on their learning

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectaions in some respects | 1 | 3.6 | 3.6 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

15. The use of ICT for CL helps students to feel more autonomous in their learning.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectations in most respects | 2 | 7.1 | 7.1 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

16. The use of ICT for CL helps to improve students social networking and discussion.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectaions in some respects | 1 | 3.6 | 3.6 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

17. The use of ICT for CL helps students to share knowledge and work collaboratively with their groupmates.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectaions in some respects | 1 | 3.6 | 3.6 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

18. The use of ICT for CL helps students to learn interactively and increase their exposure to the EFL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 27 | 96.4 | 96.4 | 96.4 |
| | Meets expectaions in some respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

19. The use of ICT for CL improve students interest and enhance their knowledge in EFL.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectaions in some respects | 1 | 3.6 | 3.6 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

20. The use of ICT for CL has made interacting with their groupmates much more easier

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectaions in some respects | 2 | 7.1 | 7.1 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

21. With the use of ICT for CL both (teacher-student, student-student) can easily get together.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 25 | 89.3 | 89.3 | 89.3 |
| | Meets expectaions in some respects | 2 | 7.1 | 7.1 | 96.4 |
| | Meets expectations in most respects | 1 | 3.6 | 3.6 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

22. The use of ICT for CL increases students' motivation and they enjoy learning.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Meets expectations in few or no respects | 26 | 92.9 | 92.9 | 92.9 |
| | Meets expectaions in some respects | 2 | 7.1 | 7.1 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

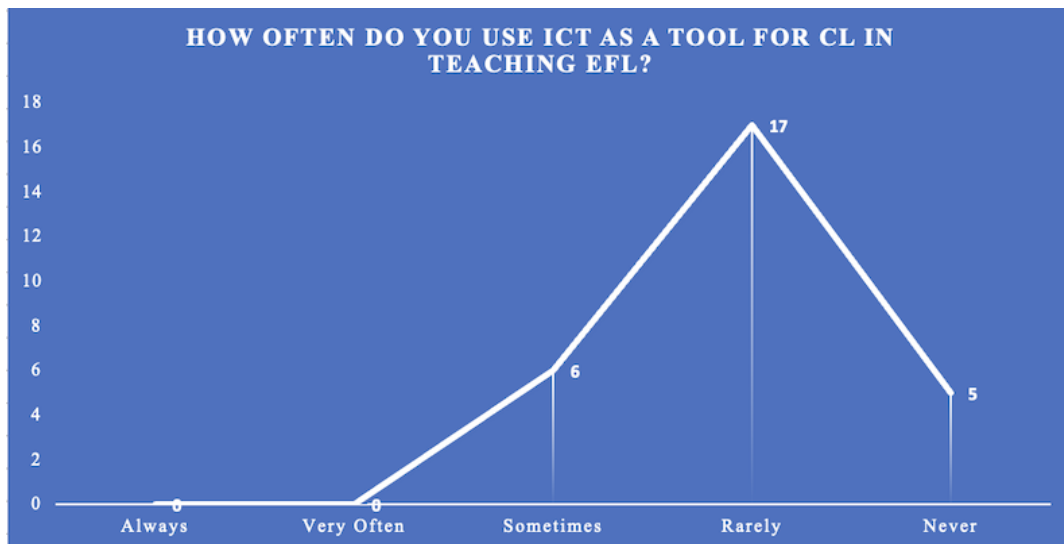
6.5.2 Post-observation interview

The EFL university teachers were interviewed again after the observation sessions to find out the reasons behind not or less practising ICT in CL. For this purpose, the researcher started with the question (*How often do you use ICT as a tool for CL in teaching EFL?*) to check

to what extent the use of ICT in CL is common among teachers.

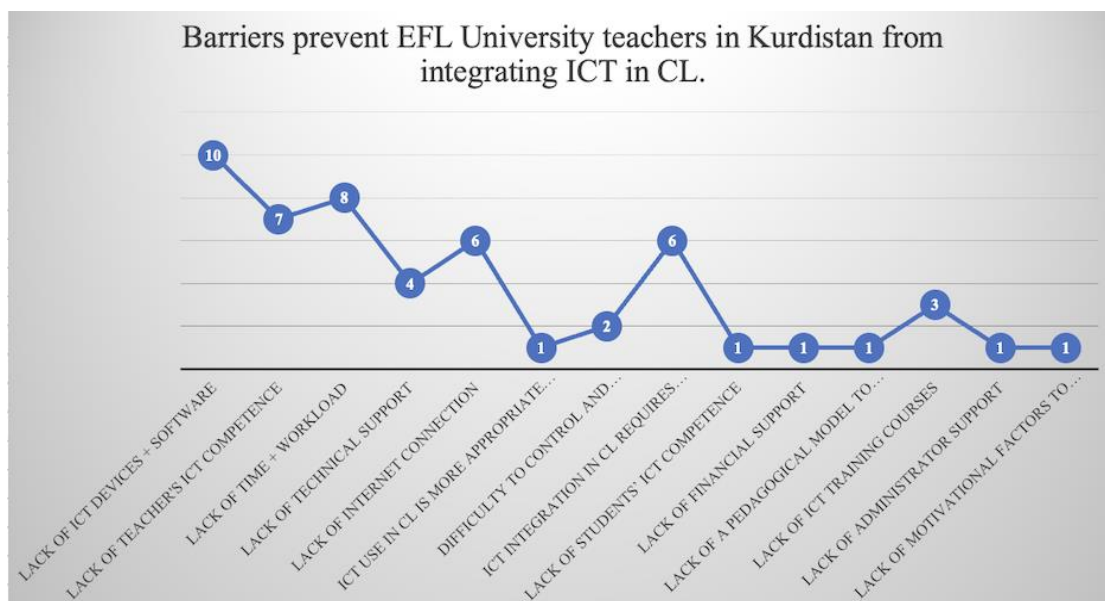
17 of the teachers claim that they rarely integrate ICT in CL, while 6 of them state that sometimes and 5 of them stated that they never use it. So, this demonstrates that the integration of ICT in CL among EFL university teachers in Kurdistan is rare. (See Graph 58).

Graph 58. How often do EFL university teachers in Kurdistan use ICT as a tool for CL in teaching EFL.



Furthermore, the EFL university teachers' responses to the question (*What are the reasons that make you not practice ICT as a tool for CL in teaching EFL so commonly?*) are presented in the following Graph (59).

Graph 59. Barriers prevent EFL University teachers in Kurdistan from integrating ICT in CL.



According to the presented data, 'Lack of ICT devices + Software' comes first. 10 out of the 28 instructors—T2, T5, T9, T11, T14, T15, T19, T20, T23, and T25— noted a shortage

of ICT equipment and a lack of software preventing them from using ICT in CL.

Then, 7 of the 28 teachers—T4, T6, T11, T14, T17, T22, and T27— acknowledge that their lack of ICT competence precludes them from using ICT effectively in class.

The second-highest number of teachers, T6, T7, T8, T13, T18, T20, T23, and T25 (8 out of 28 instructors) claim that they cannot use ICT in CL due to a lack of time and a heavy workload.

According to T2, T14, T20, and T25 (4 out of 28 teachers), the absence of technical support prevents them from adopting ICT in CL. Additionally, T2, T9, T14, T15, T20, and T23 (6 out of 28 instructors) claim that they are unable to use ICT in CL due to a lack of internet connection. While T28 (1 out of 28 teachers) believes that high school pupils should use ICTs in CL rather than college students. He or she does not use ICT in CL when instructing.

Furthermore, T6 and T24 (2 out of 28 teachers) claim that using ICT in CL makes it difficult for them to supervise and manage the class when they are teaching, which is why they only use ICT in CL infrequently. 6 out of the 28 teachers—T3, T5, T6, T16, T21, and T26— also said that they were unable to employ ICT in CL in their instruction since it takes a lot of time and effort.

T26 identified a unique impediment that the other teachers did not mention. T26, 1 of the 28 teachers, claimed that the inability of the students to use ICT in CL stopped him/her from doing so. Besides, T6 (1 out of 28 instructors) mentions a lack of funding as a hindrance to ICT use in CL. Another obstacle that prevents T10 (1 out of 28 teachers) from adopting ICT in CL is the absence of a pedagogical paradigm.

Furthermore, T1, T12, and T14 (3 out of 28 teachers) think that their inability to incorporate ICT into CL successfully is a problem caused by the lack of ICT training courses. Additionally, T20 (1 out of 28 teachers) cites a hurdle as the absence of administrator support. T1 also (1 out of 28 teachers) believes that one of the main reasons instructors are discouraged from using ICT in CL in their classrooms is the absence of motivational factors.

In accordance with the teachers' responses, we can conclude that the most frequent obstacles are a lack of ICT devices and software, a lack of time and a heavy workload, a lack of teachers' ICT proficiency, a lack of an internet connection, a need for extensive time and effort to integrate ICT into CL, a lack of technical support, and a lack of ICT training programs. Whereas the less common barriers include: ICT use in CL makes it difficult for teachers to control and manage the class while they are teaching, a lack of a pedagogical model for using

ICT in CL, a lack of administrator support, a lack of motivating factors to encourage teachers to use ICT in CL, lack of students' ICT competence, lack of financial support and a few of them believe it is more appropriate for high school students than for university students.

6.6 Pedagogical implications

This study indicated that EFL University teachers could use ICT in CL to teach EFL. They can use ICT in line with their lesson objectives to enhance the quality of their teaching and students' academic level. For this purpose, different uses of ICT in CL, including various online learning platforms or software presented (see chapter 3), help EFL teachers learn how to use them in CL to progress students' language learning.

Many studies in the research literature have also shown that a variety of ICT challenges in CL help instructors consider the obstructions they may face—next, choosing the most appropriate strategy for dealing with the barriers and successfully integrating ICT in CL.

In addition, another vital point that this study recommended being implemented by University EFL instructors in Kurdistan is to pay more attention to ICT integration in CL for teaching EFL, which assists them in teaching effectively and enhances students' EFL.

6.7 Limitations and Suggestions for further research

The limitation of this study is that the data was collected only based on the teachers' perceptions rather than on the experimental groups from different universities to check the impact of ICT for CL in teaching and learning EFL. While the results are significant, they only apply to the state universities and may not be generalizable to the Private universities in Kurdistan of Iraq.

Another limitation is that it is fitting that the research was conducted in 7 state universities in Kurdistan, but only 4 teachers participated from each university. This is due to not being interested in taking part in the research's long investigation process, including the interview, class observation and post-observation interview sessions.

Further studies should be conducted by expanding the research's sample to include Private EFL University teachers in Kurdistan and comparing the participants' views about the use of ICT as a tool of CL in teaching and learning EFL. In addition, it would be interesting to compare the barriers of ICT use in CL for teaching EFL and what are the strategies to defeat the barriers by both Private and State university teachers. This would have given a larger sample size and the ability to draw more specific findings. Furthermore, this study could be broadened

by researching different experimental groups from different Private and State universities to evaluate what influence ICT as a tool for CL has had on improving EFL teaching and learning. In addition to how the teachers face and manage the difficulties of using ICT effectively for CL.

6.8 Conclusion

Using ICTs in State Universities in Kurdistan of Iraq has its significance as teachers use them in many areas of teaching EFL. According to the findings, EFL university teachers believe using ICT as a CL tool improves CL and EFL instruction. Since,

1. ICT is a valuable tool to be used in CL in teaching EFL,
2. teachers can use ICT features for CL in teaching EFL,
3. through using ICTs, a teacher can provide a CL environment for learners,
4. using ICT in CL reduces the time and effort needed for the lesson, fosters collaboration in the classroom, and draws students' attention to the material.

Also, EFL university teachers think that using ICT as a tool for CL improves students' EFL learning, because

1. ICTs have enough features to make collaboration easy for both teachers and learners.
2. Using ICT for CL encourages students to communicate more with their group mates.
3. Using ICT for CL increases students' confidence to engage and participate actively in the lesson.
4. Using ICT for CL helps students concentrate more on their learning.
5. Using ICT for CL helps students feel more autonomous in their learning.
6. Using ICT for CL helps to improve students' social networking and discussion.
7. Using ICT for CL helps students to share knowledge and work collaboratively with their group mates.
8. Using ICT for CL helps students to learn interactively and increases their exposure to the EFL.
9. Using ICT for CL improves students' interest and enhances their knowledge of EFL.
10. Using ICT for CL has made interacting among group mates much easier, leading to improving the ratings they would have obtained through individual work on the task.
11. Using ICT for CL, we (teacher-student, student-student) can easily get together even outside of university with no barriers of time and place.
12. Using ICT for CL increases students' motivation, and they enjoy learning.

It is worth mentioning that using ICT for CL in EFL lessons requires careful preparation and well-stated objectives.

In addition, they admit that each of the following barriers can prevent teachers from using ICT in CL. The barriers are:

1. lack of Teacher's knowledge,
2. lack of Effective ICT Training Courses,
3. lack of access or an insufficient number of ICT devices and software,
4. lack of teacher confidence,
5. teachers having technophobia (fear of using ICT) toward using ICT,
6. teachers' resistance to change and negative attitudes toward the use of ICT,
7. the inadequacy of ICT to meet the student's educational needs,
8. lack of technical support,
9. teacher's lack of time,
10. lack of administration's support,
11. inadequate space and infrastructural facilities,
12. lack of coordination and management systems,
13. ICT use and ethical issues,
14. the mismatch between ICT implementation and the educational setting's culture,
15. the mismatch between ICT and curriculum.

Furthermore, the researcher summarizes the teachers' ways of dealing with the barriers of using ICT for CL. The teachers' resolving barriers entails:

1. Sending out the link or whatever will be helpful to students exceptionally early so that everyone may access it before class, preventing the internet barrier.
2. Teachers' confidence in utilizing ICT increases as they increase self-ICT competence.
3. Relying on their personal technology and internet connection rather than the university's technological infrastructure.
4. Switching platforms to meet the demands of the learners, learning more about the application of ICT and teaching the students how to use the ICT equipment.
5. Reading about ICT implementation before implementing it so that the teacher can solve any problems that may arise.
6. Teachers can improve their ICT skills through good video tutorials on using different learning platforms, like Google Meet, Google Classroom, and other online ICT uses.

7. Teachers must stay current due to the quick advancement of technological programs.
8. Teachers need to concentrate on innovative teaching methods, stay current with technology, and simultaneously develop their ICT abilities.
9. Taking ICT training and being bold in using its benefits.
10. Motivating instructors and students to use ICT to prepare their lectures and homework.
11. Enough ICT equipment should be provided in the lecture hall.
12. To encourage students to work together and have discussions using appropriate software, assign particular homework using ICT.
13. Teachers work with the administration to find solutions to barriers beyond the teachers' ability to manage them.
14. Encouraging students to bring their laptops is the most straightforward approach to fill the gap left by defective or lack of computers.
15. A good teacher should be prepared for obstacles and have a backup plan to continue the teaching session.
16. Postponing the ICT integration activity so that it could be completed at home or the library and then moving on to something else.
17. Finding the available ICT tools and making appropriate use of them; increasing my proficiency with ICT tools; Establishing norms and rules to prevent ethical issues.
18. Try to utilize any technological gadget before utilizing it, and look for an explanation on YouTube. By doing this, the teacher may get help to avoid obstacles like a lack of ICT understanding and confidence.
19. Be present in the classroom 15 minutes before the planned start time. Looking at the data shows projector or any other equipment is going to use. Make an effort to handle any technological concerns on your own in case of a problem. Ask the IT staff for help if you need help to do so.

Moreover, the teachers suggested further strategies to be used to manage the ICT issues and successfully use it in CL throughout the teaching of EFL.

1. Continuously updating the teachers' and students' ICT knowledge helps make ICT integration in CL more promising.
2. Having enough support from the administration.

3. Teachers should encourage themselves or work independently to improve their ICT skills.
4. Teachers enrolling in training programs and advancing themselves technologically.
5. Teachers' self-esteem and self-drive motives are essential for increasing ICT use in the classroom.
6. The flipped classroom method is necessary to foster a collaborative environment to face the lack of internet connection and ICT devices in class.
7. Improving the attitudes of both instructors and students toward using ICT in the teaching and learning process.
8. Managing the class time in line with the use of ICT in CL.
9. Teachers having fewer teaching hours and less crowded classes
10. Teachers who successfully integrate ICT into their lessons and advance the state of teaching and learning should be recognized and promoted.
11. The faculty and teachers need a management system for integrating ICT in CL and EFL teaching.
12. Providing teachers and students access to sufficient modern ICT resources, improving internet connectivity, offering adequate technical assistance, and offering dependable ICT teacher training programs.
13. Teachers should avoid being overly ambitious and instead set realistic goals corresponding to the ICT resources at hand.
14. Teachers should have a backup plan, but at the same time, he/she reminds this does not fix the technical issue immediately; instead, they start with another activity to save class time.
15. Teachers still practice the knowledge and skills acquired through the pandemic regime with ICT tools for CL in teaching EFL when there is no pandemic.

To have a deeper understanding of the use of ICT in CL in EFL university classes in Kurdistan, the researcher conducted class observation sessions with the interviewees. According to the data collected, most of the data measures were MEFNR. The reason behind this measure does not indicate the lack of success or ineffectiveness of ICT in CL among EFL university lecturers. Contrarily, only three of the 28 instructors in the observed classrooms used ICT in CL; the remaining 25 teachers utilize ICT in their regular teaching but have yet to use it

specifically for CL.

Therefore, to find out the reasons behind the rare practice of ICT in CL among teachers, the researcher conducted post-observation interviews with them. Based on the results, the most frequent obstacles are:

- 1) a lack of ICT devices and software,
- 2) a lack of time and a heavy workload,
- 3) a lack of teachers' ICT proficiency,
- 4) a lack of an internet connection,
- 5) a need for extensive time and effort to integrate ICT into CL,
- 6) a lack of technical support, and
- 7) a lack of ICT training programs.

Whereas the less common barriers include:

1. ICT use in CL makes it difficult for teachers to control and manage the class while they are teaching,
2. a lack of a pedagogical model for using ICT in CL,
3. a lack of administrator support,
4. a lack of motivating factors to encourage teachers to use ICT in CL,
5. lack of students' ICT competence,
6. lack of financial support, and
7. a few teachers believe it is more suitable for high school students than university students.

So, in accordance with the post-observation interviews findings, despite the fact that EFL university teachers admit the benefits of ICT in teaching in CL, however, the use of ICT for CL is not very common among EFL university teachers. This is due to the above-mentioned extrinsic and intrinsic challenges that they encounter.

It is a fact that since 2003 the system of education in the Kurdistan region has undergone many changes regarding changing the curriculum, changing the methods of teaching from traditional to a more communicative approach, and integrating technologies in the teaching and learning process. Unfortunately, most of the EduSet(s) in the Kurdistan region still need help

managing the issues of ICT integration in teaching EFL in general and CL, particularly since it takes a lot of time, effort, and money.

In line with the research findings, there are certain recommendations that the Kurdistan authority, Ministry of higher education, the university administrator, and university EFL teachers should follow. Starting with the government, it is right that many of the universities have technological equipment. That does not, however, mean that the problem of device provision has been resolved since some teachers mentioned that they bring their laptops and portable internet connection into class and ask students to bring them. This is because some ICT devices need to be updated or defective and require repairing or replacing, or they need to be more to fulfil the teachers' and students' needs. By the same token, it is important that the authority in Kurdistan pay enough attention to provide enough funds to the Ministry of higher education to meet their educational needs. In addition to affording modern ICT devices in universities without the needing for teachers or students to bring their laptops and internet connection into class.

Regarding the Ministry of higher education, since they are responsible for curriculum development, there should be a reform in the curriculum for ICT integration. As mentioned earlier, one of the barriers in front of the EFL university teachers in Kurdistan was the mismatch between the curriculum and ICT integration in CL. The teachers need more pedagogical models to know how to incorporate ICT as a tool in CL. Hence, the curriculum must be reviewed and reorganized to include how ICT is used in the CL classroom in an applicable way. Moreover, there is necessary to offer online ICT training courses, in general, and for CL in particular, to familiarize teachers with the use of ICTs for teaching EFL. Since the educational system in Kurdistan has undergone many reforms, there are still teachers who need to be more familiar with using ICT for educational purposes due to their age, lack of ICT competence, etc. So, the Ministry of higher education should mentor and train teachers through consistent ICT training courses, to help them accomplish their duties, and integrate ICT in CL, more effectively.

Hand in hand with the Ministry of higher education, the university administration should work on improving the positive attitudes among teachers towards ICT use in CL. For this purpose, there is a need for some motivational factors to encourage teachers to practice ICT in CL. For instance, providing all the necessary equipment for both teachers and students, including internet connection, computers, technical assistance, and administrative support. Furthermore, establishing the promotion procedure for instructors by drafting letters of

appreciation to those instructors who merit recognition for their accomplishments in implementing ICT in CL.

Concerning EFL, university teachers should know what the required for ICT use as a tool for CL. This indicates that teachers should also try to improve their ICT competence through training courses or other sources that help them. Enhancing their ICT knowledge gives them confidence and no fear of using ICT in CL. Additionally, teachers should update themselves with the latest ICT products for CL and find new methods or strategies to teach the EFL in a contemporary manner. For example, nowadays, so many people on YouTube are instructing teachers on using different learning platforms for educational purposes. Also, there are so many available sources online or online ICT training courses that teachers again can make use of them to advance their ICT knowledge.

Despite progressing their ICT knowledge for CL, teachers have another duty: improving the learners' ICT knowledge for CL in learning EFL. In addition to creating a positive attitude towards ICT use among learners for educational purposes. Therefore, the students need to be familiar with the benefits of using ICT for CL and how it meets their learning needs.

In conclusion, although most EFL university teachers value the benefits of ICT for CL in teaching EFL, the findings show that ICT use for CL is rare among them. Most teachers point to the obstructions that might prevent them from using ICT for CL, but the education system in Kurdistan is still developing. There is great interest in integrating ICT more effectively in CL and figuring out ways to eliminate the barriers, to help the teachers practice ICT for different educational purposes in different ways of teaching.

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Appendix 1

Interview Questions for EFL University Professors

I. Questions

1. Teachers' general viewpoint of student's learning through collaboration in small groups.

1.1 What do you understand of students' learning through collaboration in small groups?

Free responses

| |
|--|
| |
|--|

1.2 Do you think CL is an effective method for learning EFL?

| | |
|-------------------------------|------------------------------|
| Yes, <input type="checkbox"/> | No, <input type="checkbox"/> |
|-------------------------------|------------------------------|

1.3 What are the goals students might achieve from working together in groups? (Select all that apply)

| | |
|--------------------------|---|
| <input type="checkbox"/> | Develop critical thinking skills. |
| <input type="checkbox"/> | Exchange knowledge. |
| <input type="checkbox"/> | Share expertise. |
| <input type="checkbox"/> | Increase motivation. |
| <input type="checkbox"/> | Improve their attitudes toward learning. |

2. EFL University teachers' general viewpoint of using ICT in teaching and learning EFL.

2.1 Do you make use of ICT for teaching EFL?

| | |
|-------------------------------|------------------------------|
| Yes, <input type="checkbox"/> | No, <input type="checkbox"/> |
|-------------------------------|------------------------------|

2.2 Do you think ICT is a helpful tool for teaching EFL? How?

| | |
|-------------------------------|------------------------------|
| Yes, <input type="checkbox"/> | No, <input type="checkbox"/> |
|-------------------------------|------------------------------|

Free responses

| |
|--|
| |
|--|

2.3 Do you think the use of ICT has an impact on improving EFL teaching performance? How?

| | |
|-------------------------------|------------------------------|
| Yes, <input type="checkbox"/> | No, <input type="checkbox"/> |
|-------------------------------|------------------------------|

Free responses

| |
|--|
| |
|--|

3. Impacts of using ICT for CL in teaching EFL.

To what extent do you ‘Agree or Disagree’ with the following statements:

3.1 ICT is a useful tool to be used for CL.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

3.2 Teachers can make use of ICT features for CL in teaching EFL.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

3.3 With the use of ICTs as a teacher, I can provide a CL environment for learners.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

3.4 What is the aim behind using ICT for CL in EFL teaching? (Select all that apply)

| | |
|--------------------------|---|
| <input type="checkbox"/> | It increases my authority and power in class. |
| <input type="checkbox"/> | It makes a class collaborative. |
| <input type="checkbox"/> | It increases student’s cognitive competence and creativity. |
| <input type="checkbox"/> | It makes students independent and confident |
| <input type="checkbox"/> | It facilitates teacher-student and student-student relationship in class |
| <input type="checkbox"/> | It facilitates teaching. |
| <input type="checkbox"/> | It attracts the students to the lesson |
| <input type="checkbox"/> | It saves effort and time of the lesson |
| <input type="checkbox"/> | It helps to monitor and guide student’s learning |
| <input type="checkbox"/> | It helps me in teaching preparation, provide feedback. |

3.5 What is/are the most popular software you use for CL in EFL teaching session?

Free responses

3.6 What makes this software to be used most for CL?

Free responses

To what extent do you ‘Agree or Disagree’ with the following statements:

3.7 Teachers having enough ICT competence has a positive impact on improving both ICT

use for CL and EFL teaching performances?

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

3.8 Teachers having enough access to ICT hardware and software has a positive impact on improving both ICT use for CL and EFL teaching performances?

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

3.9 Teachers having enough confidence has a positive impact on improving both ICT use for CL and EFL teaching performances?

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

3.10 Teachers not having technophobia has a positive impact on improving both ICT use for CL and EFL teaching performances?

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

3.11 Teachers not having a negative attitude toward the use of ICT has a positive impact on improving both ICT use for CL and EFL teaching performances?

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4. Impacts of using ICT as a tool for CL to improve EFL learning

4.1 Do you think ICT is a suitable tool for CL to improve students' EFL learning? Please explain it.

| | |
|-------------------------------|------------------------------|
| Yes, <input type="checkbox"/> | No, <input type="checkbox"/> |
|-------------------------------|------------------------------|

Free responses

To what extent do you 'Agree or Disagree' with the following statements:

4.2 ICTs have enough features to make collaboration easy for both teachers and learners?

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.3 The use of ICT for CL encourages students to communicate more with their group mates.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.4 The use of ICT for CL increases students' confidence to engage and participate actively in the lesson.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.5 The use of ICT for CL helps students to concentrate more on their learning.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.6 The use of ICT for CL helps students to feel more autonomous in their learning.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.7 The use of ICT for CL helps to improve students' social networking and discussion.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.8 The use of ICT for CL helps students to share knowledge and work collaboratively with their group mates.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.9 The use of ICT for CL helps students to learn interactively and increase their exposure to the EFL, (e.g., communicating with their group mates and teacher in EFL, presenting the CL task in EFL, interacting with EFL native speakers, etc.).

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.10 The use of ICT for CL improves students' interest and enhances their knowledge in EFL.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.11 The use of ICT for CL has made interacting with their group mates much easier, which leads to improving the ratings that they would have obtained through individual work in the task.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.12 With the use of ICT for CL, we (teacher-student, student-student) can easily get together even outside of university with no barriers of time and place.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

4.13 The use of ICT for CL increases students' motivation and they enjoy learning.

| | | | | |
|-----------------|-----------------|----------------------|-----------------|-----------------|
| Strongly | Somewhat | Neither agree | Somewhat | Strongly |
|-----------------|-----------------|----------------------|-----------------|-----------------|

agree. agree. nor disagree. disagree. disagree.

5. The barriers of using ICT with the use of CL in teaching EFL

What are the difficulties and barriers of using ICT for CL? To what extent do you 'Agree or Disagree' with the following statements:

5.1 Lack of Teacher's knowledge (ICT Competence) of how to use ICT effectively for CL in teaching and learning.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.2 Lack of Effective ICT Training Courses.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.3 Lack of teacher's confidence in using ICT for CL.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.4 Lack of access/insufficient number of the ICT devices and software to be used for CL.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.5 Teacher's technophobia (fear of using ICT) toward using ICT in CL.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.6 Teacher's resistance to change and negative attitude toward the use of ICT.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.7 Inadequacy of ICT to meet the students' educational needs.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.8 Lack of technical support.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.9 Teacher's lack of time.

Strongly agree. Somewhat agree. Neither agree nor disagree. Somewhat disagree. Strongly disagree.

5.10 Lack of administration's support in using ICT in CL.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

5.11 Inadequate space and infrastructural facilities.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

5.12 Lack of coordination and management systems.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

5.13 ICT use and ethical issues.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

5.14 Mismatch between ICT implementation and the educational setting's culture.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

5.15 Mismatch between ICT and curriculum.

| | | | | |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|
| Strongly agree. | Somewhat agree. | Neither agree nor disagree. | Somewhat disagree. | Strongly disagree. |
|------------------------|------------------------|------------------------------------|---------------------------|---------------------------|

6. Suggestions to eliminate the barriers of using ICT with the use of CL in teaching EFL

6.1 How do you deal with the barriers of using ICT for CL?

Free responses

6.2 What strategies do you suggest to be adopted to manage the challenges and succeed in using ICT for CL in teaching EFL?

Free responses

II. Demographic Questions

1. What is the name of your Institution?
2. In what Department are you teaching?
3. How long have you been teaching EFL?
4. What is your specialized teaching subject?
5. Have you ever been participated in ICT and CL training courses?

Yes, No,

6. If you assess your ICT Competency on what level are you?

Not at all skilled Not Very Skilled Somewhat skilled Skilled

Note: The Definition of skill

| | | |
|----|----------------------|--|
| a. | Not at all skilled = | CANNOT or NEVER perform before. |
| b. | Not Very Skilled = | CAN perform WITH guidance. |
| c. | Somewhat skilled = | CAN perform INDEPENDENTLY but require guidance at times. |
| d. | Skilled = | Can perform independently WITHOUT guidance. |

7. Gender

Male Female

Appendix 2

Date: _____ Class: _____ Course: _____
 Teacher: _____ Department: _____ University: _____

Gender: Male Female

Class Observation Checklist (ICT in CL)

| | Meets expectations in few or no respects (1) | Meets expectations in some respects (2) | Meets expectations in most respects (3) | Meets expectations in all respects (4) | Exceeds expectations in all respects (5) |
|--|--|---|---|--|--|
| 1. Teachers can make use of ICT for CL in teaching EFL. | | | | | |
| 2. With the use of ICTs, a teacher provides a CL environment for learners. | | | | | |
| 3. The use of ICT for CL improves the class climate (students are more engaged and less disturbed). | | | | | |
| 4. The use of ICT for CL helps teachers to have more time to meet students' needs. | | | | | |
| 5. The use of ICT for CL helps the teacher provide immediate useful/helpful feedback. | | | | | |
| 6. The teacher has enough ICT Competence to use ICT in CL. | | | | | |
| 7. The teacher has enough confidence in using ICT in CL. | | | | | |
| 8. The teacher has enough access to ICT devices. | | | | | |
| 9. The teacher has no fear of using ICT in CL. | | | | | |
| 10. The teacher has a positive attitude toward the use of ICT in CL. | | | | | |
| 11. The students find learning easier by using ICT for CL in teaching EFL. | | | | | |
| 12. The use of ICT for CL encourages students to communicate more with their group mates. | | | | | |
| 13. The use of ICT for CL increases students' confidence to engage and participate actively in the lesson. | | | | | |
| 14. The use of ICT for CL helps students concentrate more on their learning | | | | | |
| 15. The use of ICT for CL helps students feel more autonomous in their learning. | | | | | |
| 16. The use of ICT for CL helps to improve students' social networking and discussion. | | | | | |
| 17. The use of ICT for CL helps students to share knowledge and work collaboratively with their group mates. | | | | | |
| 18. The use of ICT for CL helps students to learn interactively and increases their exposure to the EFL. | | | | | |
| 19. The use of ICT for CL improves students' interest and enhances their knowledge of EFL. | | | | | |
| 20. The use of ICT for CL has made students' interaction with their group mates much easier. | | | | | |
| 21. With the use of ICT for CL, both (teacher-student and student-student) can easily get together. | | | | | |
| 22. The use of ICT for CL increases students' motivation, and they enjoy learning. | | | | | |

Appendix 3

Post-observation Interview Questions for EFL University Professors

Date: _____

Class: _____

Course: _____

Teacher: _____

Department: _____

University: _____

Gender: Male Female

1. How often do you use ICT as a tool for CL in teaching EFL?

| Always | Very Often | Sometimes | Rarely | Never |
|--------|------------|-----------|--------|-------|
| | | | | |

2. What are the reasons that make you not practice ICT as a tool for CL in teaching EFL so commonly?