LANGUAGE ASSESSMENT IN TRANSITION: ENGLISH INSTRUCTORS' DIGITAL ASSESSMENT LITERACY AND NEEDS AT TERTIARY LEVEL

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JUNE 2022

LANGUAGE ASSESSMENT IN TRANSITION: ENGLISH INSTRUCTORS' DIGITAL ASSESSMENT LITERACY AND NEEDS AT TERTIARY LEVEL

A THESIS SUBMITTED TO THE

GRADUATE SCHOOL

OF

BAHÇEŞEHİR UNIVERSITY

EZGİ TUFAN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR

THE DEGREE OF MASTER OF ARTS

IN THE DEPARTMENT OF ENGLISH LANGUAGE EDUCATION

JUNE 2022

T.C.

BAHCESEHIR UNIVERSITY

GRADUATE SCHOOL

MASTER THESIS APPROVAL FORM

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Name Of The Thesis:	Language Assessment in Transition: English Instructors' Digital Assessment Literacy and Needs at Tertiary Level
Thesis Defense Date:	14.06.2022

This thesis has been approved by the Graduate School which has fulfilled the necessary conditions as Master thesis.

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

LANGUAGE ASSESSMENT IN TRANSITION:
ENGLISH INSTRUCTORS' DIGITAL ASSESSMENT LITERACY
AND NEEDS AT TERTIARY LEVEL

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Master's Program in English Language Education
Supervisor: Assoc. Prof. Enisa MEDE

June 2022, 112 pages

This study investigated the digital assessment literacy of English instructors who work at foundation universities in Istanbul, Turkey, and the effect of certain demographic features on the instructors' digital assessment knowledge. The study also aimed to explore English instructors' perceptions regarding their needs in digital assessment. To measure their digital assessment knowledge and the effect of demographic features, Digital Assessment Literacy Survey was administered to 123 English instructors from foundation universities in Istanbul. Semi-structured interviews were conducted with 10 English instructors to find out their perceived needs in digital assessment. The findings demonstrated that the overall digital assessment literacy levels of the English instructors were high. The variables with a statistically significant effect on the participants' digital assessment knowledge were having a graduate degree and attending training in digital assessment. In addition, the qualitative data collected through semi-structured interviews showed that despite considering themselves competent in digital assessment, English instructors at foundation universities still needed more institutional support, the alignment of digital assessment with curriculum outcomes, and further training in digital assessment.

Keywords: Digital Assessment, Assessment Literacy, Digital Assessment Literacy

ÖZ

DİLDE ÖLÇME VE DEĞERLENDİRME GEÇİŞTE: İNGİLİZCE OKUTMANLARIN DİJİTAL ÖLÇME VE DEĞERLENDİRME BİLGİLERİNİN VE İHTİYAÇLARININ ARAŞTIRILMASI

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İngiliz Dili Eğitimi Yüksek Lisans Programı
Tez Danışmanı: Doç. Dr. Enisa MEDE

Haziran 2022, 112 sayfa

Bu karma-yöntem çalışma İstanbul'daki vakıf üniversitelerinde çalışan İngilizce okutmanlarının dijital ölçme ve değerlendirme bilgilerini ve bazı demografik özelliklerinin bu konudaki bilgilerine olan etkisini incelenmiştir. Ayrıca, İngilizce okutmanlarının dijital ölçme ve değerlendirme konusundaki ihtiyaç algıları da araştırılmıştır. Dijital Ölçme ve Değerlendirme Okuryazarlığı Anketi vakıf üniversitelerinde çalışan 123 İngilizce okutmanına uygulanmıştır. Bu alandaki ihtiyaçlarını tespit etmek amacıyla ise 10 İngilizce okutmanı ile yarı-yapılandırılmış görüşmeler gerçekleştirilmiştir. Araştırmanın sonuçları İngilizce okutmanlarının dijital ölçme ve değerlendirme okuryazarlığının yüksek olduğunu göstermiştir. Nicel veri, lisansüstü eğitim ile dijital ölçme ve değerlendirme konusunda eğitime katılmanın dijital ölçme ve değerlendirme bilgisini pozitif etkilediğini ortaya koymuştur. Ayrıca, İngilizce okutmanların kendilerini dijital ölçme ve değerlendirmede yetkin görmelerine rağmen, daha fazla kurumsal desteğe, dijital ölçme ve değerlendirmenin müfredatla uyuşmasına ve bu alanda daha fazla eğitime ihtiyaç duyduklarını ortaya çıkarmıştır.

Anahtar Kelimeler: Dijital Ölçme ve Değerlendirme, Dijital Ölçme ve Değerlendirme Okuryazarlığı



To my mum and dad

ACKNOWLEDGEMENTS

This thesis would not have been possible without the support of many people. First, I would like to express my deepest gratitude to my advisor Assoc. Prof. Enisa Mede for her guidance and support throughout this study. Also, I would like to thank my thesis committee for their feedback on this study.

I am incredibly grateful to my friends and colleagues who encouraged me throughout this journey and helped me collect the data.

I could not have undertaken this journey without the constant support of my family. Thank you to my parents and my sister for your love and support. You have always been there for me, and this was no exception.

Finally, words are not enough to express my gratitude for my husband and my son. I am forever thankful to you for being patient with me, listening to me, motivating me, and constantly supporting me. Without you, I could not have done this.

TABLE OF CONTENTS

ETHICAL CONDUCT iii

ABSTRACT iv

ÖZ iv

DEDICATION ivi

ACKNOWLEDGEMENTS vii

TABLE OF CONTENTS viii

LIST OF TABLES xii

LIST OF FIGURES xiii

LIST OF ABBREVIATIONS xiiiv

CHAPTER 1: Introduction 1

1.1 Theoretical Background 1

1.1.1 Language assessment. 1

1.1.2 Digital assessment. 2

1.1.3 Assessment literacy. 3

1.2 Statement of the Problem 3

1.3 Significance of the Study 5

1.4 Purpose of the Study 6

1.5 Research Questions 6

1.6 Definition of Terms 6

Chapter 2: Literature Review 8

2.1 Assessment 8

2.1.2 Assessment of learning. 9

2.1.3 Assessment for learning 11

2.1.4 Assessment as learning. 12

2.2 Technology in Language Education 13
2.3 Digital Assessment 16
2.4 Assessment Literacy 21
2.5 Needs Analysis of Assessment 24
2.6 Digital Assessment Literacy and Instructors' Needs 25
2.7 Conclusion 26
Chapter 3: Methodology 28
3.1 Research Design 28
3.2 Setting and Participants 29
3.3 Procedures 33
3.3.1 Data collection instruments. 33
3.3.1.1 Digital Assessment Literacy Survey. 33
3.3.1.2 Piloting. 34
3.3.1.3 Semi-structured interviews. 36
3.3.2 Data collection procedures. 37
3.3.3 Sampling 38
3.3.4 Data analysis procedures 38
3.3.5 Reliability and validity 39
3.4 Limitations 39
Chapter 4: Findings 40
4.1 Quantitative Data Analysis 40
4.1.1 Preparation of the dataset and normality tests 40
4.1.2 Descriptive statistics of Digital Assessment Literacy Survey 41
4.1.3 Findings of the difference in the participants' digital assessment literacy levels based on their demographic features. 45
4.1.3.1Years of teaching experience. 45
4.1.3.2 Educational Background 46
4.1.3.3 Being a testing member or not 47
4.1.3.4 Attending training in digital assessment or not 47

4.2 Qualitative Data Analysis 49
4.2.1 Instructors' perceptions about their digital assessment literacy 49
4.2.2 Instructors' perceptions about their needs in digital assessment 50
4.2.2.1 Perceptions about institutional support 51
4.2.2.1.1 Technical and financial support 51
4.2.2.2 Perceptions about institutional support 52
4.2.2.2.1 Skills alignment needs 52
4.2.2.2.2 Task types alignment needs 53
4.2.2.3 Perceptions about training needs 54
4.2.2.3.1 Training in administrative issues 54
4.2.2.3.2 Training in digital assessment tools and strategies 55
4.2.2.3.3 Training in analyzing and interpreting digital data 56

4.3 Integration of Quantitative and Qualitative Findings 57
4.3.1 Findings about the digital assessment literacy level of English instructors working at foundation universities in Istanbul 57
4.3.2 Findings about the difference in the digital assessment literacy of English instructors based on their demographic features: Years of teaching experience, educational background, being a testing member or not, and attending any training in digital assessment 58
4.3.3 Findings about the perceptions of English instructors about their needs in digital assessment 58

Chapter 5: Discussion and Conclusions 60

5.1 Discussion of Findings for Research Questions 60
5.1.1 Discussion of the findings of RQ1: What is the digital assessment literacy level of English instructors working at foundation universities in Istanbul? 60
5.1.2 Discussion of the findings of RQ2: Is there any difference in the digital assessment literacy of English instructors based on the following demographic features (years of teaching experience, educational background, being a testing member or not, and attending training in digital assessment)? 63

5.1.3 Discussion of the findings of RQ 3: What are the perceptions of English instructors about their needs in digital assessment? 66

5.2 Pedagogical Implications 71

5.3 Conclusion 73

5.4 Recommendations for Further Research 74

REFERENCES 76

APPENDICES ..... **Error! Bookmark not defined.**

LIST OF TABLES

TABLES

Table 1 Distribution of the Participants Based on Their Demographic Features …..31

Table 2 Interviewees' Profiles ……..……33

Table 3 KMO and Bartlett's Test Results Before Item Deletion and Alteration ..…35

Table 4 KMO and Bartlett's Test Results After Item Deletion ……36

Table 5 Reliability Statistics ……36

Table 6 Descriptive Statistics of Digital Assessment Literacy Scale ……..……..…41

Table 7 Descriptive Statistics Based on Years of Teaching Experience ……..44

Table 8 Digital Assessment Literacy Based on Years of Teaching Experience …..45

Table 9 Digital Assessment Literacy Based on Educational Background …….45

Table 10 Digital Assessment Literacy Based on Being a Testing

Office Member or Not…….……46

Table 11 Digital Assessment Literacy Based on Attending Training

in Digital Assessment or Not ……..……47

Table 12 The Emerging Themes Based on Instructors' Perceptions about

Their Needs in Digital Assessment …….……49

LIST OF FIGURES

FIGURES

Figure 1 The assessment process……..……...……9

Figure 2 Digcompedu areas and scope …….....……...16

Figure 3 Cycles of e-assessment ……..……19

Figure 4 Explanatory Sequential Design …….……29

Figure 5 Outlier detected in the Digital Assessment Literacy scores ……40

LIST OF ABBREVIATIONS

EFL	English as a Foreign Language
CALL	Computer Assisted Language Learning
ICT	Information and Communication Technologies

Chapter 1

Introduction

This chapter aims to provide a general overview of the study investigating digital assessment literacy levels of English instructors working at the foundation universities in Istanbul, Turkey along with their needs in digital assessment. The current chapter begins with a theoretical overview that briefly explains the changes in language assessment from past to present and introduces the concept assessment literacy in particular. Also, the use of digital assessment in language teaching is expounded. In the following sections, the statement of the problem, the purpose, and the significance of the study are presented along with the research questions. Finally, the key terms mentioned in the study are briefly defined.

1.1 Theoretical Background

Starting as a subfield of Applied Linguistics in the mid-1960s, language assessment has evolved and been subjected to many changes over time (Bachman, 2000). The developments in language learning, more research in language testing, and the innovations in technology significantly affected language assessment overall and created new areas for research in language assessment.

1.1.1 Language assessment. Language assessment is one of the inseparable and fundamental elements of the language learning and teaching process, which assists both teachers and learners (Black, 1993; Stiggins, 2002). In the traditional view of language assessment, instruction and assessment are generally viewed as two separate processes, and instruction is followed by a traditional form of assessment (Shepard, 2000). This traditional view of language teaching has changed to some extent because of the paradigm shift in language teaching and learning, with a move from behaviorism to social constructivism, in which learners and the learning process are prioritized (Vygotsky, 1978). However, language assessment, an integral part of the language learning process, has failed to follow this shift in language teaching and learning pedagogy.

In many language classrooms, traditional ways of language assessment have still been applied, emphasizing the teacher and teaching instead of the learner and learning. These forms of traditional assessment do not align with a constructivist approach to language teaching, hindering both teaching and learning processes with formulaic and close-ended assessment modes (Anderson, 2016). This very disparity between teaching, learning, and assessment has been causing ineffectiveness in the learning process, since how learners are assessed significantly impacts their attitude toward language learning (Birenbaum & Feldman, 1998). To have an effective language learning process, there should be an alignment between instruction, learning, and assessment, which makes a shift in language assessment critical for the benefit of all stakeholders in language teaching and learning.

1.1.2 Digital assessment. The rapid developments in technology have created new needs and demands in society and professional life, which have significantly affected all aspects of life including education. In order to keep up with the skills of the 21st century that students are expected to have, schools in many parts of the world have started to incorporate digital knowledge and skills into their programs (Rusman et al., 2014), which has also been supported with different forms of digital assessment that can be described as "any practice where technology is used to enhance or support assessment and feedback activities" (Boitshwarelo et al., 2017). Nevertheless, there were still many schools that lagged far behind technological transformation and digital progress.

However, with the sudden outbreak of Covid in 2019, a forced digital transformation occurred in education in many educational contexts (Daniel, 2020). During this transformation, among many other challenges, one area that had to be redesigned and rethought carefully was assessment, in which a greater shift was needed because it was not manageable to adapt most language exams to online platforms simply due to the lack of ready online exam platforms. Moreover, even with the existing platforms, there were a lot of concerns considering the difficulties in online assessment such as the lack of variety in exam formats, exam security, and academic dishonesty. Under those circumstances, in a very limited time, many teachers all around the world had to change their assessment practices, inevitably resulting in more use of technology-enhanced and formative assessment tools (Peytcheva-Forsyth & Aleksieva, 2021).

1.1.3 Assessment literacy. As mentioned before, there should be an alignment between assessment and language learning and teaching for a quality language learning process, since without effective monitoring and evaluation during the process, both teachers and learners may face more challenges. Considering and using assessment merely as a grading tool rather than a teaching and learning tool deprive language teachers of many opportunities that can empower their practices (Campbell & Collins, 2007; Rogler, 2014; Shepard, 2019). Therefore, language teachers must be aware of assessment, assessment strategies as well as changes and trends in assessment in order to be better equipped to monitor and evaluate their own teaching/instruction along with the learning process.

To better prepare language teachers, there has been an emphasis on professional development in the field of language assessment (Farhady, 2019), bringing up the term assessment literacy, which is described as having enough knowledge of the fundamental principles and concepts regarding assessment (Popham, 2004, p.82). According to Webb (2002, p.2), it is not only sufficient to know how to assess learners and which assessment strategies to use because if teachers are not competent in interpreting the results of the assessment and exploiting these results and interpretations, no positive impact of assessment on teaching and learning can be observed. In that sense, having assessment literacy is quite essential to be able to draw meaningful conclusions from students' works in a conducted assessment and take actions when necessary. Similarly, Fulcher (2012) emphasizes that it is critical for language instructors to improve their assessment literacy to comprehend the forces that influence the institutions they work for and their everyday teaching practices, as well as to have some control over the consequences of these forces (pp. 114–115). Despite the lack of attention given to assessment literacy, especially during teacher education (Lam, 2015; Mertler & Campbell, 2005), it is quite critical considering the increased use of tests and assessment both in the classroom context and the national exams; therefore, teachers as practitioners and assessors should empower themselves and thereby become more competent in assessment.

1.2 Statement of the Problem

Assessment is a critical part of the language learning process, which brings about the need for better-equipped language teachers in the field of assessment. One of the key effects of teachers'

assessment literacy on learning is the impact that assessment creates on the language learning process, which is called the "washback" effect. Washback can be described as the influence that testing and assessment have on teaching and learning (Alderson & Wall, 1993), which has become a commonly researched topic in the field of language assessment because it has been accepted that what is assessed has a direct impact on what learners pay attention to and how they learn as well as how teachers instruct (McEwen, 1995a). Moreover, even though it is generally the high-stakes exams that come to mind when assessment is considered, most of the assessment is in fact done in a classroom context without any life-changing consequences. According to Stiggins (2014, p.68), teachers spend almost a third of their professional time on assessment-related practices, which particularly marks the importance of assessment and thereby the critical role of assessment literacy in teaching and learning. Despite its utmost importance, the research shows that teachers need more support and training pertaining to assessment in general along with new forms of assessment focusing on formative and digital assessment (Mede & Atay, 2017; Öz, 2014; Tsagari, 2011).

As a result of the sudden transition to emergency remote teaching due to Covid-19, most of the language classes had to be switched to online around the world, which has brought along the need for digital assessment, creating another challenge for language teachers. Even though teachers have enough knowledge of assessment-related conceptions and practices and understand how to use assessment effectively to improve instruction and learning, this does not mean they are also effective assessors in a digital environment, which requires teachers to have various other skills depending on the digital environment and teaching context (Eyal, 2012). Language teachers' digital assessment literacy cannot be measured with available LAL tools, since they are not adapted to the digital context, which brings about a different assessment of language teachers' digital assessment literacy.

When the Turkish context is considered, it is widely observed that the education system is highly exam-focused, especially the high-stake exams such as high school and university entrance exams (Hatipoğlu, 2010), which may signal the importance given to assessment; however, until 1998, there was no testing and assessment course offered in language education departments at universities in Turkey (Şahin, 2019). In addition to national high-stakes exams, teachers have been responsible for assessing learners' performance and progress with both summative and formative assessment methods in each grade level, which takes a great amount of teachers' classroom time. With the rapid integration of technology into language teaching, language teachers are also

expected to be competent not only in the use of technology use in the teaching process but also in digital testing and assessment. However, it has been observed that Turkish EFL teachers' assessment literacy levels were low, and they did not have much knowledge concerning concepts and principles of assessment and testing (Mede & Atay, 2017). Therefore, it would not be wrong to assume that EFL teachers whose assessment literacy levels are not very high are also not very competent in terms of digital assessment. In addition, when the literature is reviewed, it is seen that no study to date has investigated the digital assessment literacy level of English instructors and their needs on the subject despite its critical role especially considering the sudden shift to forced online or hybrid education because of the Covid-19 outbreak.

Overall, despite the importance given to assessment in the Turkish context and the time spent assessing learners' progress, language teachers do not have adequate knowledge and skills in assessment and testing. To the knowledge of the researcher, there is no research conducted to understand the digital assessment knowledge that language teachers have in the Turkish context, which shows the urgent need to understand the current situation and identify the needs of language teachers in digital assessment.

1.3 Significance of the Study

Assessment in our digital age should be powerful, fit for purpose, valid, reliable, and focused on empowering learning, which justifies the need for language teachers who have enough digital assessment knowledge in our age. Although language assessment literacy levels have been investigated and their critical role in teaching and learning has been discussed by many researchers, digital assessment literacy has not been addressed in the Turkish context. Therefore, through the detailed exploration of this study, the digital assessment literacy of English instructors working at foundation universities will be unraveled and their needs in digital assessment will be comprehensively inquired about. As a result, this study will raise awareness of the importance of digital assessment and English instructors' digital assessment literacy levels. Moreover, this study is expected to shed light on English instructors' perceived needs in digital assessment, which can help foundation universities take action to train their instructors on the subject if necessary.

1.4 Purpose of the Study

The purpose of this study is to investigate the digital assessment literacy levels of English instructors who work at foundation universities in Istanbul, Turkey. Specifically, the study aims to examine whether there is a relationship between English instructors' digital assessment literacy and demographic features such as years of experience, educational background, and the training they had in digital assessment. In addition to these, the perceptions of the English instructors regarding their needs in digital assessment are aimed to be explored in detail.

1.5 Research Questions

To meet the objectives of this study, the following research questions were addressed:

1. What is the digital assessment literacy level of English instructors working at foundation universities in Istanbul?
2. Is there any difference in the digital assessment literacy of the participants based on their following demographic features?
    a) Years of teaching experience
    b) Educational background
    c) Being a testing member or not
    d) Attending training in digital assessment
3. What are the perceptions of English instructors about their needs in digital assessment?

1.6 Definition of Terms

Assessment: It is generally used as an umbrella term for all the activities and practices related to assessment. It refers to all practices that teachers and sometimes learners do in order to get information about teaching and learning processes and to make changes if necessary (Black & Wiliam, 1998).

Language Assessment Literacy: Fulcher (2012, p.125) describes it as "the knowledge, skills, and abilities required to design, develop, maintain or evaluate, large-scale standardized

and/or classroom-based tests, familiarity with test processes, and awareness of principles and concepts that guide and underpin practice, including ethics and codes of practice".

Digital assessment: It refers to any use of digital technology for the purposes of educational assessment (Timmis et al., 2015).

Digital Assessment Literacy: It refers to the knowledge and skills needed to use digital technology to gather information on teaching and learning processes to make necessary decisions (Eyal, 2012).

Chapter 2

Literature Review

In this chapter, a review of literature is presented and discussed in detail about the definition of assessment, types of assessment, language assessment literacy, digital assessment along with the studies conducted on assessment literacy in Turkey and around the world.

2.1 Assessment

Recently, the significant effect of assessment on learning and teaching has been widely acknowledged, bringing about more attention given to the study of language assessment. In its broadest sense, assessment in education is defined as "the systematic collection and analysis of information to improve student learning" (Stassen et al., 2001, p. 5), signaling the main purpose of assessment. Teaching and learning are so closely interrelated that assessments performed directly determine the characteristics and quality of the education given.

The term "assessment" is generally confused with the terms testing and measurement, and thereby often misused; however, assessment is an umbrella term that includes testing and measurement (Brown, 2003, p.4). Assessment describes any activities that are carried out in order to collect information regarding students' learning process and to make necessary decisions whereas, in testing, tests are just a specific type of assessment tool that is used to measure learners' performance on a given subject (Miller et al., 2008, p.28). Measurement, on the other hand, refers to the process, in which numerical data are collected to determine learners' performance; therefore, it is safe to state that assessment is a term defined as the ongoing process that encompasses measurement and testing or tests.

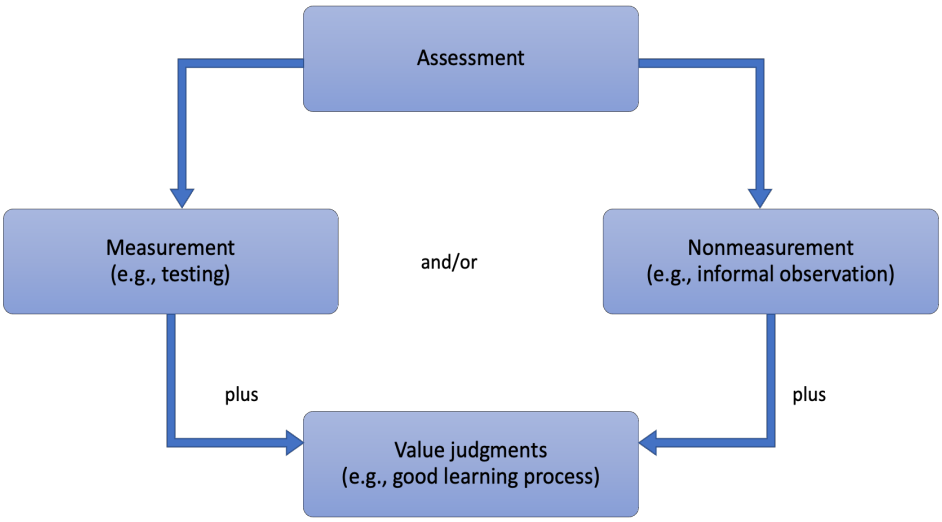


Figure 1 The assessment process (Miller et al., 2008, p.29).

In the language education context, various forms of assessment are frequently used to provide the information that is fundamental for teachers to make judgments, and for these judgments, teachers may have different purposes or needs such as diagnosing, monitoring learners' progress, assigning grades, or improving instruction. Traditionally, assessment has been considered a tool to simply assign grades; however, the key purpose of assessment is to help teachers make judgments and decisions about learning and teaching by collecting, analyzing, and using evidence of student learning (McMillan, 2017, p.14).

Assessment is a multifaceted process that has many purposes and different approaches to it, and it is essential to be familiar with these to make assessment an integral and supporting part of learning and teaching. There are three different key approaches to assessment: *Assessment of Learning*, *Assessment for Learning, and Assessment as Learning* (Earl, 2003; Hume & Coll, 2009), which will be discussed below.

2.1.2 Assessment of learning. *Assessment of learning*, commonly referred to as *summative assessment*, is aimed to measure learners' performance in a specified subject to be able to grade and report results, its purpose and impact on stakeholders differentiate it from other approaches such as *assessment for learning* (Lee, 2007, p.182). In this approach, the purpose of assessment is generally "to describe learning achieved at a certain time for the purposes of reporting to parents, other teachers, the pupils themselves and, in summary form, other interested parties such as school

governors or school boards" (Harlen & James, 1997, p. 370). Assessment of learning, therefore, is commonly carried out at the end of a specified study which could be a unit or a module to measure how much has been learned from the material taught, and it is still the prevalent form of assessment in most educational contexts, including language education (Earl, 2003).

Considering *assessment of learning*, assessment is administered at a fixed time rather than being a process. Therefore, it does not focus on feedback and improvement for the future, and feedback frequently comes in the form of ranks and grades, as the purpose is to see what has been learned by learners. Since its purpose is to measure what has been achieved at the end of a study, the content that is assessed is often broad and not directed to the proficiency of a specific subject or knowledge, which may result in surface learning.

The approach *assessment of learning* has been dominant in education for a long time to test learners' overall achievement and rank them for the purposes of placement, yet, in the last decades, it has also been criticized substantially because of the negative impact it leaves on learning and teaching (Black et al., 2003; Harlen & Deakin Crick, 2002; William & Thompson, 2008) as it is heavily involved with performance rather than learners' progress or improvement in teaching and learning process (Wing, 2018). Popham (2009) asserted that the results of summative assessment are seldom made use of to determine learners' knowledge gaps and improve these, since feedback is generally provided in the form of an overall score, finding the gaps in the learning process becomes the responsibility of learners. Despite being effective in ranking, the assessment of learning approach is mostly ineffective in motivating learners, especially those who get poor results. When learners get a low score, they might get demotivated toward learning as well as identifying and closing their knowledge gaps (Black et al., 2003). Another criticism of this approach has been concerned with the impact it leaves on instruction, which has been observed in high-stake summative tests rather than summative tests done as part of classroom assessment. Due to these high-stake tests, the focus on teaching shifts to test content and passing test, which shifts the focus from the actual learning.

In the light of the above information, while *assessment of learning* or *summative assessment* could be useful in determining if learning has occurred as planned and what could be future learning goals, it lacks support for learning and teaching processes when it is not balanced with other assessment practices such as *assessment for learning* and *assessment as learning*.

2.1.3 Assessment for learning. While assessment of learning aims to measure learning by ranking and giving summative scores to learners, the assessment for learning approach, known as formative assessment, aims to support and monitor learning, and make changes in instruction when necessary (Earl, 2003). Black et al. (2003) define *assessment for learning* as "any assessment for which the priority in its design and practice is to serve the purpose of promoting pupils' learning (p. 2). It thus differs from assessment designed primarily to serve the purposes of accountability, or of ranking, or of certifying competence".

Since the first introduction of the term formative assessment by Scriven (1967, p.43) to evaluate programs, the meaning and practice of formative assessment have developed to a great extent, particularly in the area of language teaching and learning. The Assessment Reform Group, which was founded in 1989 and lasted until 2010, aimed to investigate the implications of assessment policies along with the practices and analyze studies done within the scope of assessment. The researchers also defined *assessment for learning*, also known as *formative assessment*, as an assessment strategy, in which the goal is to gather knowledge to determine how much learners have learned and what to do next by learners as well as teachers (McDowell et al., 2009). Additionally, Gipps et al. (2000) emphasized the cyclical structure of formative assessment which is reunited with teaching and learning with the adjustments made in the process. Another characteristic of formative assessment is to include learners in the assessment so that they could also become reflective, autonomous, and active learners, as suggested by the social constructivist approach as well.

Even though the concept of assessment generally reminds people of standard tests that are well-planned, timed, and one-off, *formative assessment* can be applied both formally and informally. In formal formative assessment, teachers gather information from learners at a planned and limited time and analyze students' work to give feedback and plan actions (Ruiz-primo & Furtak, 2007). On the other hand, most formative assessment occurs informally during a lesson, as the nature of formative assessment is ongoing and spontaneous, going hand in hand with teaching and learning (Black, 2005), such as asking learners to give their opinions or reasons on a given subject, followed by a feedback session and elaboration.

According to Biggs (1996), who studied assessment at the tertiary level, the purpose of assessment should be to support the learning and teaching process rather than grading and ranking learners by their scores because of the washback effect, which can briefly be described as the

impact assessment has on teaching and learning. He put forward that any kind of assessment would indirectly determine what is taught in a classroom in a positive or negative way; that is why assessment strategies should be considered with the impacts they would leave on other elements such as curriculum or learning. For instance, a vocabulary quiz in which learners are expected to match vocabulary items with their definitions may not result in any critical thinking or construction of knowledge, as aimed by the social constructivist approach; rather, it would encourage learners to simply memorize and recall vocabulary items in the exam. On the other hand, in a more assessment for learning approach, learners might be given several vocabulary items along with a prompt and asked to produce a paragraph on the given subject by using the words provided, which would be followed by a peer-feedback session monitored by the teacher. The latter assessment strategy would leave a more positive washback effect on the language learning process by encouraging learners to apply the knowledge they have and to take part in the assessment process.

Formative assessment is considered a student-centered assessment model, yet this does mean that teachers remain in the background and have less responsibility. On the contrary, to have an effective and efficient formative assessment, teachers should well design the assessment process and be careful during the information gathering process to plan their future actions, which could be adjusting their instruction or giving detailed feedback. According to Duschl and Gitomer (1997), in an informal formative assessment process, there should be four elements that should take place, which are *the teacher elicits a response, the student responds, the teacher recognizes student response,* and *the teacher uses student response*, showing a clear cyclical pattern to have a productive assessment supporting learning and teaching at the same time.

Overall, *assessment for learning* or *formative assessment* aims to discover what learners' strengths, weaknesses, and goals are while they are still in the learning process, which leaves room and time to modify whatever is necessary while learning is happening.

2.1.4 Assessment as learning. Despite the shift from summative to formative assessment in the 21st century, learners have still been left out in the assessment practice, especially in high-stakes assessments (Taras, 2009). With the move from behaviorism to constructivism, education theorists emphasized the importance of including learners in the teaching and learning process, suggesting that learning is a process of knowledge construction, and learners, therefore, have to take responsibility for their own learning by being the agents of learning (Bruner, 1996). According to Dann (2014), the focus is on "the self" during the learning process (p.9), which means

learners are an active part of the process, leaving it to teachers and other stakeholders to create the environment that can allow this. This student-centered approach to learning has undeniably promoted more learner participation and involvement in the teaching and learning process; therefore, learners have become major partners in every step of the process.

Similarly, it is quite essential to include learners in the assessment process as well, for it is an integral part of teaching and learning and it has a great impact on these processes. With more frequent use of formative assessment as assessment for learning, the inclusion of learners in the assessment process has been aimed, since it is more flexible and process-oriented, especially with continual feedback sessions; however, this approach has also been criticized for becoming quite mechanical and dominating in time just as in the assessment of learning approach, thereby leaving little space for the active inclusion of learners (Torrance, 2012). This, in return, has brought about a newer approach called *assessment as learning* that is, in fact, part of assessment of learning. Dann (2014) defined assessment as learning as "the complex interplay of assessment, teaching, and learning which holds at its core the notion that pupils must understand their own learning progress and goals through a range of processes which are in themselves cognitive events" (pp.150-151). As opposed to the traditional view of assessment, assessment in this approach is considered as part of learning, and the focus here is on learners' active engagement in the assessment process to enhance their self-regulation, self-efficacy, and metacognition (Dann, 2002). When learners become agents of not only their own learning but also their own assessment, it helps them to have better metacognition of the process, which in the end assists them to take more responsibility and have a sense of ownership of the whole process.

As can be seen, in the assessment as learning approach, learners are empowered by being involved in the assessment processes, which makes assessment an integral part of learning and teaching rather than being a separate part of the process. Therefore, this approach requires language instructors to rethink their assessment practices and understandings of learning and assessment.

2.2 Technology in Language Education

The rapid developments in technology have significantly altered every sector of life since the mid-20th century, which has inevitably affected language education. With the introduction of CALL, which stands for Computer Assisted Language Learning, the use of information

technologies, more specifically computers, as part of the language teaching and learning process has become prevalent around the world. CALL has been defined as a learning process in which learners make use of computers by taking more active roles in their learning journey (Beatty, 2003). According to Warschauer (1996), CALL can be categorized as *Behaviourist CALL, Communicative CALL,* and *Integrative CALL* historically. In the first phase of CALL, computers were integrated into education to present instructional materials to learners and help them do the drills, which were considered necessary for a successful language learning process. Especially in the 1970s, language classes in universities heavily made use of audio cassettes to have learners repeat the drills as many times as possible (Bax, 2003); at the time, computers and other technological tools were perfect to allow learners to work individually and get feedback, which was critical considering that the focus was not on instruction anymore but learning, and learning process was not limited to the classroom. In the second phase, Communicative CALL, with the changes in the view of language and language education, the methods also altered. Technology in this period helped learners comprehend the language accurately and use it as much as possible; therefore, the focus shifted from repetitive drills to the use of language (Warschauer, 1996). When more and more people had their own individual computers, it changed the approaches and methods of learning as well. With the introduction and use of multimedia and the Internet, learners had the opportunity to reach authentic materials and interact with native speakers, which was also in line with the socio-cognitive view of language, the dominant approach at the time. Bax (2003), on the other hand, has a different categorization as restricted, open, and integrated CALL. The first integration of computers and technological tools was "restricted", with the use of the Internet, CALL is now in the "open" phase, in which learners have more options and the use and purpose of technology are not limited. According to Bax (2003), the integrated phase is yet to come, since he describes that period as "normalized"; therefore, when the use of technology becomes routine, learners along with teachers do not think about or recognize it anymore.

After the Covid-19 pandemic, with the sudden transition to emergency remote teaching, technological tools, more specifically the use of computers, have become a part of people's everyday life in educational contexts, which moved the technology use in language education closer to the state of "full integration". However, it is not always an easy task for teachers to integrate technology, theory, and pedagogy and create harmony (Garrett, 2009). In a world where students are now considered "digital natives", teachers should also evolve and have "digital

competence", which can be defined as having the ability to act in a satisfactory and effective way in today's digital world (Van Petegem et al., 2021, p. 22). Therefore, in a digital world like ours, teachers must transform themselves as well to keep pace with the current developments in education as well as their learners. The 2018 Programme for International Student Assessment (PISA) investigated the use of technology and its impacts on learning and teaching, which demonstrated that technology use has a clear effect on the learners' performance, but the type of technological tool also alters the impact; for example, student-based tools such as tablets have been associated with lower scores on the tests (Bryant et al., 2020). More importantly, the research revealed that the technology in the hands of teachers has created more impact on learners' performance in a positive way,

In brief, there has been more research focusing on the skills and competencies that today's teachers should have, one of which is digital competence. Although all citizens should be competent enough to take part in a digital society, teachers have more responsibility as role models leading the way. *Digital competence* is commonly considered as having the ability to use available technological tools; however, for educators, it is much more than that; for instance, digitally competent teachers should think about and decide on the best learning environment for their learners and integrate digital technologies into best pedagogic practice and organizational strategies. European Framework for the Digital Competence of Educators focuses on six main areas to provide a guideline for teachers to improve their digital competencies professionally, as presented in the Figure below (Redecker, 2017).

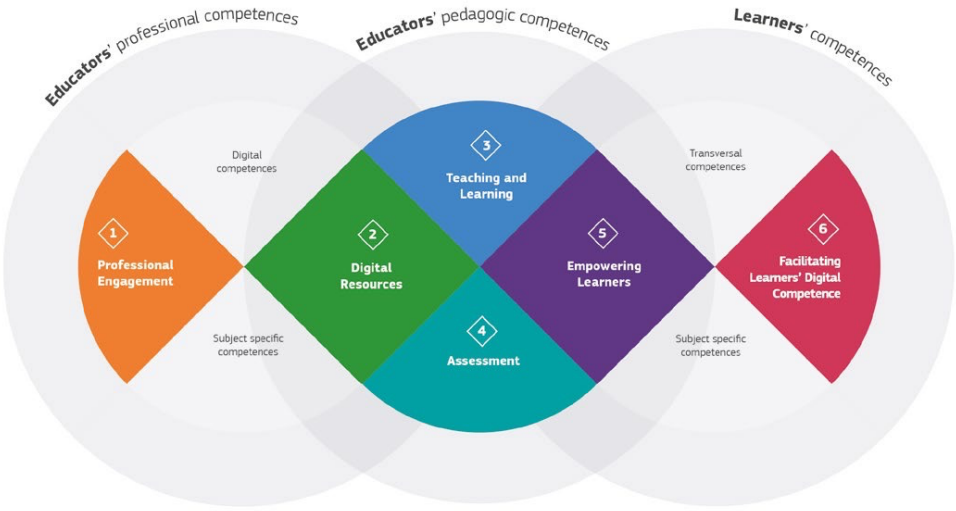


Figure 2 Digcompedu areas and scope (Redecker, 2017).

The areas designated in the framework present what is necessary for an efficient and innovative teaching and learning process while incorporating digital technologies into specifically planning (Area 2), implementation (Area 3), and assessment (Area 4).

In conclusion, being able to select, use and analyze the effectiveness of digital technologies is part of teachers' professional lives to enhance teaching and learning; therefore, teachers should go beyond the simple use of technological tools in their classroom and use effective innovative digital technologies in all parts of the teaching and learning process.

2.3 Digital Assessment

Many innovative and creative methods and approaches that are used in teaching and learning have brought about the need for a change in assessment as well (Coiro & Castek, 2011; Whitelock & Brasher, 2006). As a result, this required a departure from the traditional testing approach and an alignment with the current trends in teaching and learning to foster learning more and engage learners in the assessment process, which is a significant shift when compared with the traditional testing approach.

As a result of the innovations in ICT and the emergence of the Internet, all sectors of life have been impacted, creating a change in line with professional and social demands. Similarly, teaching and learning processes have been part of this change with more frequent integration of technological tools into these processes to keep up with the 21st-century skills that are expected from learners (Rusman et al., 2014). This very need to be aligned with the current developments both in technology and pedagogy has obviously transformed the roles of stakeholders in education, the approaches, and the methods used in teaching (Rosenbusch, 2020). Especially with the sudden and forced transition to remote teaching during the Covid19 pandemic, the transformation of educational institutions has accelerated, forcing many of these institutions to invest in technology and integrate it into their programs by trying out new learning environments in and outside class. These innovations and developments that have occurred in teaching and learning have had to be reflected in assessment processes as well since it was neither appropriate nor effective to use only traditional pen and paper testing. Therefore, along with the trending e-learning movement,

technology-enhanced assessment methods have become an essential part of the teaching and learning process, bringing radical changes in assessment (Whitelock & Brasher, 2006).

When the literature is reviewed, there are a lot of terms used for assessment methods incorporating technology, which are digital assessment, online assessment, e-assessment, computer-based assessment, computer-based testing, computer-aided assessment, computer-assisted assessment, computer-assisted testing, computer-administered testing, technology-enhanced assessment, technology-enabled assessment, computerized assessment, computerized testing, web-based assessment, e-examination, and e-testing (Ghouali et al., 2020). In this study, the term "digital assessment" will be used to refer to all the assessment methods such as formative and summative assessment that include the use of web-based technologies throughout the whole cycle of the assessment process, starting from planning and designing digital assessment tasks to the storage (Mimirinis, 2019). One of the most significant changes brought by the introduction of digital assessment has been the variety of assessment instruments that can be used for both formative and summative assessment purposes such as adaptive tests, e-portfolios, and interactive case studies and scenarios (Doğan et al., 2020). Benson and Brack (2010) divide the uses of the online environment for formative and summative assessment into four distinct categories: submissions of items for assessment, automated assessment, online discussions, and web publishing (p.126). In submissions of items for assessment, assessment tasks such as essays, reports, and presentations are simply submitted through the use of technology, but the assessment process is not automated and has to be done by teachers, whereas in the second one, both the assessment environment and the grading process are automated with simple assessment instruments like multiple-choice tests, matching activities or simulations. Compared to the first two categories, the last two allow more authenticity and creativity by their very nature; for example, in online discussions students are expected to take part in debates in online forums or do some role-playing, and as part of web publishing, e-portfolios, blogs, and wikis are used for assessment purposes.

As a result of the wider acceptance and more common use of digital assessment in educational institutions, more research has been carried out to determine a conceptual framework for digital assessment (Isaias et al., 2017; Tinoca et al., 2014; Whitelock et al., 2006). According to Tinoca et al. (2014), to have a high-quality digital assessment in the higher education context, the assessment process should be based on a four-dimension framework, which is consisted of

authenticity, consistency, transparency, and practicability, each of which is supported by a set of sub-criteria to have a valid and competent assessment program in an online context. Isaias et al. (2017), on the other hand, presented a framework for an effective digital assessment system based on a variety of design options, scalability, security, access and usability, feature feedback, personalization, cost, and interoperability. In their study, it was found that the variety of design options is the criterion that is considered the most crucial by the participants around the world. In another study, Whitelock et al. (2006) put forward that a digital assessment system works in a cycle similar to traditional pen and paper assessment, stating that motivation is the driving force that starts the cycle, which is followed by design and creation as presented in Figure 3. After the assessment tasks are developed, they are tested and delivered to students, which are then subjected to the data retrieval, processing, and feedback stages. After the evaluation of results, general feedback goes into a wider context, feeding teaching, learning, and assessment processes.

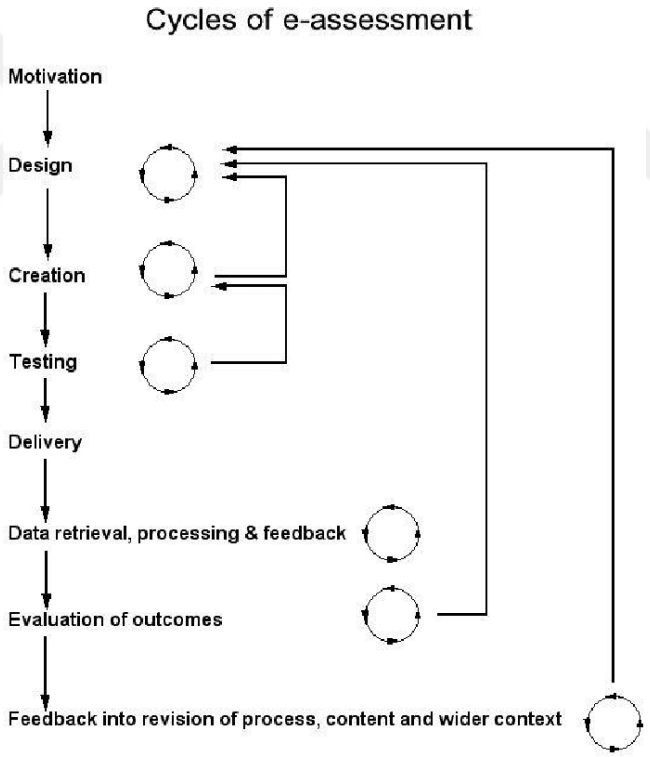


Figure 3 Cycles of e-assessment (Whitelock et al., 2006).

Although the cycle seems very similar to traditional assessment, digital assessment differs in many aspects by providing many benefits to the stakeholders in the process. First, the greater

flexibility that digital assessment provides in terms of place and time has helped many institutions, especially during the emergency remote education process, which is also found to be a factor that reduces learners' anxiety related to assessment tasks (Peytcheva-Forsyth & Aleksieva, 2021). Moreover, digital assessment helps teachers interact with their learners in many ways while also allowing greater interaction among learners using technologies such as forums and wikis (Davies, 2010). Thanks to increased interaction and involvement of learners in the assessment process, digital assessment also helps expand learners' metacognition levels and take more responsibility for their learning and assessment processes. In addition, monitoring understanding and progress outside class with the use of these technologies allows teachers and learners to use in-class time more effectively, thereby leaving more time for meaningful interaction time (Davies, 2010). Feedback, an essential part of the assessment process, can also be provided with digital audio or videos, or automated feedback can be given right after the assessment task, which overall enables teachers to give more personalized feedback, save time and make their learners more engaged with feedback (Davies, 2010; Kiryakova, 2021). Furthermore, digital assessment offers an excellent opportunity to assess many learners quickly and easily with certain task formats such as fully automated multiple-choice tests, which give a chance to process a large set of data in a detailed way, thereby evaluating learners' performance in each question, leading to more detailed feedback provided to test takers (Whitelock, 2006).

Despite the advantages brought by digital assessment, it creates certain challenges as well for each stakeholder involved in the process. While institutions have to provide the appropriate and effective infrastructure and technology solutions, teachers are required to have digital competence as well as a good level of assessment literacy in order to develop valid and reliable assessment strategies. There are many studies demonstrating that if teachers are unfamiliar with technology in general or digital assessment technologies, they do not feel confident enough to make use of available technologies or opt for assessment tasks that test lower-order skills only, thus creating an ineffective digital assessment system (Jordan & Mitchell, 2009; Mackenzie, 2003; Ridgway et al., 2004). A study about the use of technology by higher education teachers in Portugal by Peres et al. (2017) highlighted that the teachers mostly made use of elementary technology with the purpose of resource distribution such as Moodle, showing that although the technology use for assessment purposes was mentioned as one of their goals, they seemed to fail to do so due to the lack of training to employ more complex technology for teaching or assessment

processes. Similarly, Pombo et al. (2016) stated that the use of ICT in higher education was rather limited to the dissemination of educational resources, and there were only a few instances of technology-enhanced assessment that were used. Even though some teachers make use of digital assessment, it is not easy to create high-quality and fit-for-purpose assessment tasks digitally, since it requires a significant amount of time and digital competence, which often results in mechanical or poorly designed assessment tasks (Mackenzie, 2003). St-Onge et al. (2021) suggested that teachers are in fact aware of the significance of integrating digital assessment practices, especially after the sudden shift to emergency remote teaching during the pandemic; however, they need to be provided with the necessary training, time, evidence-informed recommendations, and institutional support.

Digital assessment has also created the need for active collaboration among different stakeholders with different expertise areas such as educational technologists, developers, policymakers, and instructors who have the necessary pedagogical knowledge (Chase et al., 2017). The tools necessary for the effective administration of digital assessment require a higher level of knowledge and expertise in information and communications technology, yet this knowledge by itself is not enough without the contributions of instructors, learners, and policymakers in education. As a study in the Norwegian context showed (Raaheim et al.,2019), the academics were concerned about the challenges such as the lack of cooperation within and between organizations, the lack of digital assessment policy as well as the lack of legal risk analysis. It is clear that even with effective digital assessment tools and the necessary digital assessment literacy, higher education institutions need clear guidelines and laws by including academics in the decision-making process as well.

To wrap up, the research in the literature demonstrates that the availability of digital assessment technologies itself does not ensure a valid, reliable, effective, or fit-for-purpose digital assessment. One of the key factors to having a functioning digital assessment system is to have teachers who have a good level of digital assessment literacy and who can produce authentic, consistent, transparent, and practical digital assessment tasks as suggested by Tinoca et al. (2014), rather than simply transferring pen-and-paper tests to the online platforms. It may be more attainable to track learners' progress in online learning environments more efficiently and engage them more thanks to teachers who are more confident and skilled in digital assessment.

2.4 Assessment Literacy

Having a command of content knowledge by itself does not guarantee the effective application of assessment in a classroom (Inbar-Lourie, 2008; Scarino, 2013). Teachers should be well aware of what formats of assessment are available and which ones are suitable to their own teaching context, which requires a well-designed and detailed teacher education on assessment. Without being provided with the necessary knowledge and tools, teachers naturally cannot conduct assessment that is aligned with the relevant teaching and learning context, which highlights the importance of teacher assessment literacy (Stiggins, 1995).

The concept of "assessment literacy" has been investigated increasingly since the 1990s because assessment and accountability have become even more significant when the impact of assessment on teaching and learning has been understood (Black & Wiliam, 1998, p.7). With this understanding, more and more research has focused on exploring what truly constitutes assessment literacy and what teachers' assessment literacy levels are (Inbar-Lourie, 2017; Popham, 2009; Vogt & Tsagari, 2014). Although assessment knowledge had been studied before, the term "assessment literacy" was first coined by Stiggins (1991), who defined it as having "a basic understanding of the meaning of high- and low-quality assessment and the ability to apply that knowledge to various measures of student achievement" (p. 545). Webb (2002) also emphasized the importance of teachers' assessment literacy by seeing them as the consumers of assessment knowledge and defined it as the ability to "interpret the results from these assessments, and how to apply these results to improve student learning and program effectiveness" (p.1).

In addition to its definition, there has been a debate over what assessment literacy includes, and one of the most accepted frameworks is by the American Federation of Teachers (1990). Although it has been the guiding framework for many assessment literacy measurement instruments (DeLuca, 2016), it has been also criticized for being dated and not including the current assessment conceptions and circumstances. Brookhart (2011, p.7) put forward an updated list of educational assessment knowledge and skills expected from teachers based on the 1990 Standards.

1. Teachers should understand learning in the content area they teach.

2. Teachers should be able to articulate clear learning intentions that are congruent with both the content and depth of thinking implied by standards and curriculum goals, in such a way that they are attainable and assessable.
3. Teachers should have a repertoire of strategies for communicating to students what achievement of a learning intention looks like.
4. Teachers should understand the purposes and uses of the range of available assessment options and be skilled in using them.
5. Teachers should have the skills to analyze classroom questions, test items and performance assessment tasks to ascertain the specific knowledge and thinking skills required for students to do them.
6. Teachers should have the skills to provide effective, useful feedback on student work.
7. Teachers should be able to construct scoring schemes that quantify student performance on classroom assessments into useful information for decisions about students, classrooms, schools, and districts. These decisions should lead to improved student learning, growth, or development.
8. Teachers should be able to administer external assessments and interpret their results for decisions about students, classrooms, schools, and districts.
9. Teachers should be able to articulate their interpretations of assessment results and their reasoning about the educational decisions based on assessment results to the educational populations they serve (student and his/her family, class, school, community).
10. Teachers should be able to help students use assessment information to make sound educational decisions.
11. Teachers should understand and carry out their legal and ethical responsibilities in assessment as they conduct their work.

When describing what should constitute assessment literacy, Davies (2008), on the other hand, stated that "a knowledge + skills" approach to assessment is not enough, because having assessment and content knowledge does not ensure quality assessment; therefore, "principles" such as fairness, ethics and professionalism should be added (p.335). However, in time, these definitions and frameworks have been criticized for stating that assessment literacy is in fact more complex and multidimensional (Farhady, 2019). Some researchers put forward that unique

discipline-specific assessment literacies are necessary to be able to better define and determine teachers' assessment literacy (Farhady, 2018; Zolfaghari & Ahmadi, 2016). The research shows that discipline-specific assessment literacy is especially prevalent in the areas of mathematics, science, and language teaching (Levi & Inbar-Lourie, 2019). In the area of language teaching, it has been referred to as "language assessment literacy" and defined as "the knowledge, skills, and abilities required to design, develop, maintain or evaluate large-scale standardized and/or classroom-based tests, familiarity with test processes, and awareness of principles and concepts that guide and underpin practice, including ethics and codes of practice" (Fulcher, 2012, p.125).

Despite the lack of attention given to assessment literacy, especially during teacher education, it is quite critical considering that one method of assessment is rarely enough to determine what has been learned in a classroom and to adjust teaching to meet learners' needs (Stiggins, 2002). Having assessment literacy is also essential to be able to draw correct conclusions from students' works in a conducted assessment. Despite its utmost importance, the research shows that teachers need more support and training pertaining to assessment in general along with new forms of assessment focusing on the formative side (Popham, 2009). In the Canadian context, the research revealed that teacher candidates' knowledge of assessment was quite limited and their self-efficacy regarding assessment was also low despite the four-year teacher education programs. The study by Tsagari (2011) shows that teachers are aware of their weaknesses and needs in assessment; however, when it comes to professional development, they neglect their needs in this area. As for the Turkish context, the research done by Mede and Atay (2017) demonstrates that Turkish EFL teachers' assessment literacy levels were low, and they did not have much knowledge concerning concepts and principles of assessment and testing. According to Öz (2014), Turkish EFL teachers mostly use traditional forms of assessment in their classrooms, without making use of formative assessment tools such as peer feedback and self-assessment, tools that are highly valued in language teaching and learning.

In brief, it is obvious that to undertake assessment activities, English instructors must have a significant amount of language assessment knowledge. Nonetheless, the literature demonstrates that there is still a discrepancy between what language teachers need to know about assessment and what they really know. It is also clear from the literature that language teachers' assessment literacy in the digital environment has gotten almost no attention despite the proliferation of online learning environments.

2.5 Needs Analysis of Assessment

Needs analysis, also named needs assessment, is considered a crucial tool used in many areas including education, and many definitions of it have been made to better explain the concept (Graves, 2000; Nunan, 1988; Williams, 2014). According to Hutchinson and Waters (1987, p.55), the concept of needs can be defined as necessities, wants and lacks, thereby the gap between the current situation and what is wanted can be described as a need (Kaila, 2005). Needs analysis, on the other hand, is defined as "the processes involved in gathering information about the needs of a particular client group in industry or education" (Brown, 2009, p. 269). As suggested by Graves (2000, p.98), needs analysis can be used to determine learners' needs and preferences through a systematic and ongoing process of data collection and analysis, yet it can also be utilized to analyze needs and develop other areas such as teachers' professional development.

As a result of the greater attention given to assessment literacy, more research has been conducted to identify language teachers' needs in assessment and testing (Firoozi et al., 2019; Fulcher, 2012; Tsagari &Vogt, 2015). A study by Fulcher (2012) demonstrated that language teachers had neither assessment knowledge nor opportunities to get training in the subject; because of the needs analysis, some suggestions were put forward to increase language teachers' assessment literacy levels. Another study by Tsagari and Vogt (2015) indicated that language teachers in some European countries needed specific training in classroom assessment and feedback such as self-assessment and peer assessment. Similarly, in Turkey, Ölmezer-Öztürk and Aydın (2019) carried out research in order to understand EFL teachers' opinions about their assessment knowledge and find out their needs in assessment, which showed the need for assessment training even on specific subjects such as analyzing reliability and validity. Doğru (2020) also studied the language assessment literacy needs of tertiary-level English instructors in Turkey and found that despite getting pre-service training in language testing and assessment, the instructors stated that they still needed further training in the subject.

As the studies conducted indicate, the assessment literacy levels of teachers are still not sufficient to support teaching and learning. Although they are familiar with some of the conceptions of assessment, the assessment practices of language teachers might improve with

further training. Therefore, to fill the gap in this area, it is imperative to determine teachers' needs in assessment first.

2.6 Digital Assessment Literacy and Instructors' Needs

Despite the attention and emphasis given to the assessment literacy of teachers in recent decades, digital assessment and digital assessment literacy of teachers had not been investigated thoroughly until the pandemic hit education and forced institutions to shift to online platforms for teaching and assessment. The increasing use of online tools and online learning environments in education has also created the need for teachers who have digital assessment literacy (Husain, 2021; Zhang et al., 2021).

Eyal (2012) pointed out that in the 21st century, the need for traditional assessment knowledge has decreased since the learning environment and learners' needs have significantly changed; now, teachers need to understand their roles as assessors and at the same time incorporate technology into their assessment practices. In the study, the researcher defined digital assessment literacy as "the role of the teacher as an assessor in a technology-rich environment" (p.37). Having the necessary digital assessment knowledge and skills is critical in the sense that the digital learning environment has features that are so distinctive that it requires assessment methods appropriate to the needs of that environment. In a study conducted in the United States by Liang and Creasy (2004), it was revealed that the digital learning environment has substantially transformed the role of the teacher and learner by giving the learner more responsibility and supporting active engagement, collaborative learning as well as learner autonomy, which also brought different assessment strategies reinforcing self-directed and collaborative learning (p.7). They also stated that despite the inclusion of more learner and learning-centered assessments, teachers still lacked the skill to involve learners in the assessment design process and to create a more interactive assessment.

Although much has been written about the training needs of English teachers in assessment, little attention has been paid to assessment training in the area of digital assessment. In a study done in the Swedish context, it was found that despite getting training in online teaching, most of the participating online EFL instructors stated that they had no training in developing e-assessment and wished to have more support and opportunities focusing on how to use e-assessment to

improve learners' language and critical thinking skills (Johansson, 2020). In line with Johansson's study, Husain (2021) found that even experienced teachers did not have sufficient digital assessment literacy and wanted to get trained to improve their digital assessment skills and thereby train others. In another study conducted in the context of school shutdowns during the Covid-19 pandemic in three Asian countries, China, Thailand, and Pakistan, the researchers investigated the language assessment literacy during emergency remote teaching and revealed the importance of training needs in language assessment to better adapt their assessment strategies to the emerging circumstances with the pandemic (Tian et al., 2021). However, they also stated that the outcomes of the training might not be effectively reflected in the practice because of the constraints such as technical issues and the number of students in the classroom. In the Turkish context, the use of digital assessment for language learning and teaching has not been researched enough; thus, there are no studies that have looked into the needs of language teachers in the area of digital assessment to the knowledge of the researcher.

Overall, the above-mentioned studies indicate that with the increased use of online teaching, teachers have become aware of the significance of having digital assessment knowledge and skills to be able to better support learning in the online environment and make necessary changes in their instruction. As a result of this awareness, teachers want to have the necessary training to create more relevant and up-to-date assessments that can foster learning by including more interactive, collaborative, and inclusive assessment tasks.

2.7 Conclusion

To conclude, after the significance and impact of assessment have been perceived, more and more studies have been carried out to understand and determine teacher assessment literacy and their needs in assessment. However, with the rise of e-learning and educational technologies, digital assessment has started to be a part of teaching and learning processes, which has, in turn, impacted the concept of assessment literacy. Now, teachers are expected to be skilled and competent in digital technologies and this is also reflected in their assessment practices. Yet, there is no research carried out to understand the digital assessment knowledge that English instructors have along with their needs in digital assessment in the Turkish context to the knowledge of the

researcher. Therefore, the present study aims to gain a detailed understanding of English instructors' digital assessment literacy as well as their digital assessment needs at the tertiary level.

Chapter 3

Methodology

This chapter explains the methodology of this thesis study. The research design, setting, and participants along with procedures are presented respectively. In the procedures, data collection instruments, data collection procedures, types of sampling, and data analysis procedures are discussed in detail.

To determine the digital assessment literacy levels of English instructors working at the foundation universities in Istanbul and their perceptions about their needs in digital assessment, the following research questions are formulated:

1. What is the digital assessment literacy level of English instructors working at foundation universities in Istanbul?
2. Is there any difference in the digital assessment literacy of the participants based on their following demographic features?
    a) Years of teaching experience
    b) Educational background
    c) Being a testing member or not
    d) Attending training in digital assessment
3. What are the perceptions of English instructors about their needs in digital assessment?

3.1 Research Design

This thesis study was designed as an explanatory sequential mixed design, in which the quantitative data was collected first; then, the issue was further explored through qualitative data to better understand it. As put forward by Creswell and Plano Clark (2011), a mixed-method research design follows a procedure to collect, analyze and mix quantitative and qualitative data in a single study to investigate a research problem, which allows researchers to acquire a deeper understanding of the issue that is researched. Furthermore, mixing both quantitative and qualitative research methods and data enables researchers to avoid potential shortcomings of each research

method when they are used separately (Creswell, 2013). However, the mixed-method research design also requires researchers to be competent in both quantitative and qualitative research, since it is not simply studying two types of data, but it requires "merging, integrating, linking, or embedding the two strands of research" (Creswell, 2012, p.535). Depending on the weight given to the quantitative and/or qualitative data collection analysis, Creswell and Plano Clark (2011) defined six types of mixed-method designs, which are convergent parallel design, the explanatory sequential design, the exploratory sequential design, the embedded design, the transformative design, and the multiphase design. Prioritizing collecting and analyzing quantitative data, this thesis study utilized an explanatory sequential design, which gives the opportunity "to obtain quantitative results from a population in the first phase and then refine or elaborate these findings through an in-depth qualitative exploration in the second phase" (Creswell, 2012, p.544). Therefore, in this study, different but complementary data were collected using a survey to determine the digital assessment literacy levels of English instructors working at the foundation universities in Istanbul and semi-structured interviews with some of the English instructors to explore their perceptions about their needs in digital assessment. The following figure shows the research design of the study:

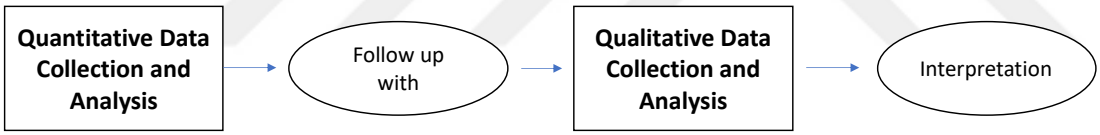


Figure 4 Explanatory Sequential Design (Creswell, 2012, p. 541).

3.2 Setting and Participants

This study was conducted at the preparatory programs of the foundation universities in Istanbul, Turkey. The purpose of these preparatory programs is to equip students with the necessary language skills that they need in their academic studies. Through these intensive language courses, students are taught both receptive (reading and listening) and productive skills (writing and speaking) to improve their academic and social communication skills. After a year-long language education, all students are required to take a proficiency exam, and if they receive

a passing score, they start their undergraduate studies. Therefore, these intensive language programs have a significant impact on students' academic success during their undergraduate education.

Since these programs are quite loaded in terms of learning objectives and content, it is of great importance to follow students' progress regularly to be able to intervene when needed. That's why, a variety of formative and summative assessment methods including exams, quizzes, portfolios, and process writing tasks are used to gather relevant information about students' progress or performance and make decisions about learning and teaching processes, which points to the significance of assessment in the preparatory programs. Being aware of the importance of testing and assessment in these programs, most preparatory programs have a separate testing unit, especially for summative assessments such as midterm and final exams. However, instructors working in the preparatory programs should also have a holistic view of teaching, learning and assessment as well as use a variety of classroom assessment methods to collect data on teaching and learning to make judgments, pointing out the need for instructors who have a high level of assessment literacy.

Due to the COVID-19 pandemic, education at universities has also been seriously challenged. The circumstances brought by the pandemic have forced educational institutions and all stakeholders to adapt to the new conditions. Therefore, there has emerged a greater need for academic institutions to change their curriculum, instructional, and assessment methods especially forcing them to make use of the available technologies (Toquero, 2020, p.3). The key change in education has been the quick move to the digitalization of educational processes, bringing both challenges and opportunities to higher education. Because of the spread of the pandemic in Istanbul in 2020, all preparatory schools had to halt face-to-face education and move to fully online classes, which caused all instructors to transform their instruction and assessment strategies in a very short time. Even after the vaccination process, there are still many foundation universities that are using a hybrid learning model, blending face-to-face classroom instruction and an online learning environment.

The participants of the current study included 123 English instructors who work at foundation universities in Istanbul. As presented in the following table, the participating instructors had varying levels of teaching experience, ranging from novice instructors (22 %) to instructors that have been teaching for more than 21 years (21.1 %). As for their educational background,

most of the participants (59.3 %) had an MA Degree, while 35.8 % of them completed a BA Degree. In terms of teaching certificates, many participants (47.2 %) did not have any teaching certificates such as CELTA or DELTA. As stated above, a great majority of the participants (92.7 %) were teaching online classes, ranging from 1-5 hours to more than 15 hours. Also, a significant number of the participant instructors (41,5 %) worked as testing office members, indicating that they were experienced in assessment and testing. Although most of the participants (69.9 %) stated that they had attended courses or training in assessment, only 39 % of them declared that they had courses or training in digital assessment. Finally, when they were asked to rate their level of competence in digital assessment, 72 instructors evaluated their knowledge on the subject as "competent" whereas 35 of them rated their knowledge as "not very competent".

Table 1

Distribution of the Participants Based on Their Demographic Features

Years of experience	**n**	**%**
1-5 years	27	22
6-10 years	25	20.3
11-15 years	28	22.8
16-20 years	17	13.8
More than 21 years	26	21.1
Total	123	100
Educational Background		
Bachelor's	44	35.8
Master's	73	59.3
Doctorate	6	4.9
Total	123	100
Teaching certificates		
CELTA	29	23.6
DELTA	12	9.8
TESOL	12	9.8
More than 1 certificate	12	9.8
None	58	47.2
Total	123	100

Table 1 (cont.d)

Being a testing office member	**n**	**%**
Yes	51	41.5
No	72	58.5
Total	123	100
Online Teaching Hours		
1-5 hours	14	11.4
6-10 hours	42	34.1
11-15 hours	26	21.1
More than 15 hours	32	26
None	9	7.3
Total	123	100
Attended programs/ courses/ training in assessment		
Yes	86	69.9
No	37	30.1
Total	123	100
Attended programs/ courses/ training in digital assessment		
Yes	48	39
No	75	61
Total	123	100
Perceived level of digital assessment literacy		
Very competent	13	10.6
Competent	72	58.5
Not competent	3	2.4
Not very competent	35	28.5
Total	123	100

As for the qualitative data, semi-structured interviews were carried out with ten English instructors to be able to understand their perceptions of their needs in digital assessment. To reflect a similar distribution as in the quantitative data, 5 instructors who have worked in a testing office were chosen. The following table presents the general overview of the interviewees' profiles:

Table 2

Interviewees' profiles

	Years of experience	Degree	Roles	Perceived level of digital assessment literacy
Interviewee 1	9	MA	Tester + Instructor	Competent
Interviewee 2	20	MA	Instructor	Competent
Interviewee 3	14	BA	Instructor	Competent
Interviewee 4	15	MA	Tester + Instructor	Competent
Interviewee 5	13	BA	Tester + Instructor	Competent
Interviewee 6	17	MA	Tester + Instructor	Competent
Interviewee 7	13	MA	Tester + Instructor	Competent
Interviewee 8	6	BA	Instructor	Very Competent
Interviewee 9	10	BA	Instructor	Very Competent
Interviewee 10	5	BA	Instructor	Not very competent

3.3 Procedures

This section presents the details about the data collection instruments, pilot study, data analysis, reliability and validity of the data collection tool respectively. Finally, the limitations of the study are explained.

3.3.1 Data collection instruments. As stated above, the current study utilized a mixed-method research design, and the data were gathered with the help of an online survey and semi-structured interviews. While the survey provided the quantitative data, semi-structured interviews provided the data for the qualitative part of the study.

3.3.1.1 Digital Assessment Literacy Survey. The Digital Assessment Literacy Survey that was administered to the English instructors who work at the foundation universities in Istanbul was adapted from the paper by Eyal (2012) which identified the abilities and skills required of teachers for digital assessment literacy. In the paper, Eyal (2012) discussed the need for teachers who are competent in digital assessment and defined digital assessment literacy by dividing it into

three sections, which are basic, intermediate, and advanced digital assessment literacy. In the current study, the three categories were adapted by the researcher to create a survey with a 5-point Likert scale with options ranging from *strongly disagree* (1) to *strongly agree* (5). The survey had two sections in total and aimed to collect data about the digital assessment literacy level of English instructors working at foundation universities in Istanbul. The first part of the survey included items to collect background information about the participants such as their educational background, professional experience, and training related to assessment. The second part of the survey, on the other hand, was designed as a Likert scale and included 24 items in total to gather information about English instructors' digital assessment literacy before the piloting process. The items in the second part of the survey were divided into three sections as presented in Eyal's (2012) paper: basic, intermediate, and advanced digital assessment literacy (See Appendix A). For this study, a cross-sectional online survey was employed to collect data on English instructors' digital assessment literacy.

3.3.1.2 Piloting. Pilot testing of a data collection instrument is fundamental in order to increase research quality and warn researchers about the unanticipated problems that may come up during the data collection process, thereby increasing the reliability and validity of the research undertaken (Gudmundsdottir & Brock-Utne, 2010; van Teijlingen & Hundley, 2001). van Teijlingen and Hundley (2001, p.1) suggested that a pilot study in social science can be utilized for two purposes, which are a mini version of the major study and a trial of a data collection instrument. In the current study, the piloting aimed to try out the survey that was going to be used in the study to be able to identify ambiguous items and statements included in the survey as well as to measure the reliability and validity of the instrument.

During the pilot study, the researcher collected data from a different sample group that included 45 participants who were not going to take part in the actual study to measure the reliability and validity of the survey. In the digital assessment literacy list prepared by Eyal (2012), there were 24 items in the second part, including 7 items in the Basic Digital Assessment Literacy sub-factor, 8 items in the Intermediate Digital Assessment Literacy, and 9 items in the Advanced Digital Assessment Literacy sub-factor to measure the digital assessment literacy levels of the instructors.

First, factor analysis was conducted for the Digital Assessment Literacy Scale. As Table 3 shows, the KMO value for the scale was found .843, which was higher than the accepted value (=.841 > 0.5). Additionally, the significance value of Bartlett's Test of Sphericity was .000, indicating that it is statistically significant (p<.05). Both values showed that the data were adequate to proceed with the factor analysis. However, most items in the scale cross loaded and were distributed among two factors rather than the predetermined three sub-factors. Moreover, based on the feedback that the researcher received from the participants of the pilot study, one item (Item 8) was eliminated, and minor wording changes were made to the items that were unclear and ambiguous. To make the survey clearer and shorter, the wording of most items was simplified.

Table 3

KMO and Bartlett's Test Results Before Item Deletion and Alteration

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.843
Bartlett's Test of Sphericity	Approx. Chi-Square	923.539
	df	276
	Sig.	.000

*p<.05

Since Item 8, which was about the minimization of the number of computerized tests used for learning assessment, caused confusion among the participants, it was deleted from the survey. After all the alterations, the validity and reliability of the scale were measured again. As presented in Table 4, the KMO value was .835, which was still in the acceptable range (=.835 > 0.5), and the significance value of Bartlett's Test of Sphericity was .000, indicating that it was adequate to proceed with the factor analysis. After the intervention, it was found that the items in the survey were better distributed except for Item 14, which loaded positive in the first sub-factor rather than the second sub-factor; therefore, it was moved to the first sub-factor. The fine-tuned final version of the survey appears in Appendix A.

Table 4

KMO and Bartlett's Test Results After Item Deletion

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.835
Bartlett's Test of Sphericity	Approx. Chi-Square	891.403
	df	253
	Sig.	.000

After the validity of the survey was ensured, a reliability analysis was conducted to measure internal consistency. Hinton et al. (2014, p. 363) stated that a Cronbach Alpha score ranges between 0 and 1, and scores above .75 are an indicator of a scale with high reliability, whereas scales with Alpha scores ranging from .50 to .75 are considered a moderately reliable scale. In the current study, as presented in Table 5, the Cronbach Alpha coefficient was calculated as .959, demonstrating that the scale used in the study is highly reliable.

Table 5

Reliability Statistics

Cronbach's Alpha	N of Items
.959	23

3.3.1.3 Semi-structured interviews. Having interviews with a certain number of participants gives a more in-depth understanding of the researched subject, particularly in a phenomenological study. In this study, a semi-structured interview was preferred, for they can provide some flexibility to researchers to some extent, giving more control over the topics to researchers (Given, 2008, p.811).

By using convenience sampling, 10 semi-structured interviews were conducted with the English instructors working at foundation universities in Istanbul to be able to understand their digital assessment practices and to determine their perceived needs in digital assessment. Since there was no set of interview questions found that would match the purpose of the qualitative part of this study, the researcher prepared five questions by getting feedback from the experts in the research field (Appendix B). The first question aimed to find out how assessment processes were

affected by the pandemic and the sudden introduction of online teaching practices. The second one tried to determine what the instructors understood from digital assessment and which digital assessment practices they used in their classrooms to evaluate their learners. The third question inquired about the digital tools they used to assess their learners by focusing on the purposes and effectiveness of these digital tools. The fourth question aimed to reveal their understanding of assessment literacy and how much English instructors should know about digital assessment. Finally, the last question tried to find out English instructors' needs in digital assessment. For reliability and validity purposes, the interview questions were piloted with 2 participants and subjected to some changes based on the feedback gathered from the participants. Under the pandemic circumstances, all the interviews had to be held and recorded online, most of which took around 20 minutes. Before each interview, the consent of each participant was taken by the researcher.

3.3.2 Data collection procedures. For the current study, both quantitative and qualitative data were collected. The quantitative data were gathered by using the Digital Assessment Literacy Survey, which was adapted from Eyal's (2012) definition of digital assessment skills. The first part of the survey aimed to collect demographic information about the participants, and the second part included items to determine English instructors perceived digital assessment literacy. Following the survey's adaptation, it was piloted with 45 participants, and appropriate changes were made as based on the piloting analysis. After the alterations, the survey data were collected through an online survey. The survey link was sent to the participants via email, and they were asked to fill out the survey. At the end of the data collection process, 123 English instructors working at foundation universities in Istanbul participated in the quantitative part of the study.

As for the qualitative part of the study that aimed to investigate the perceived needs of the English instructors working at foundation universities in Istanbul in digital assessment, semi-structured interviews were conducted with 10 English instructors. The interviews were conducted online during the spring semester of the 2021-2022 academic year because of the COVID-19 pandemic. Before the interview, a consent form was sent to each participant to show that their participation was voluntary and informed.

3.3.3 Sampling. Since a sample in a study is used as the representative of the targeted population (Creswell, 2003), choosing the right sampling technique is critical to be able to generalize the findings to the targeted population. Probability sampling and non-probability sampling are the two types of sampling. Random, systematic, stratified, stage, and cluster sampling methods are used in the former to apply a random selection to the population. The convenience sampling method, a form of non-probability sampling, was used for this explanatory sequential research to increase participation in the study and better generalize the results to the target population.

3.3.4 Data analysis procedures. To gain a better understanding of the research questions, the data collected for this study were subjected to both qualitative and quantitative analysis. First of all, the numerical data collected from the online survey were analyzed with the help of SPSS (Statistical Package for the Social Sciences). The participants' level of digital assessment literacy was analyzed using descriptive statistics, whereas the relationship between specific demographic variables, such as experience or educational background, and their digital assessment literacy level was evaluated using inferential statistics. For the first research question, the data were subjected to descriptive statistics, which included calculating frequencies, mean scores, and standard deviations. As for the second research question in which the relationships between certain demographic variables were investigated, the One-way ANOVA and Independent Samples *t*-test were run in order to compare the mean scores of different groups, as the Kolmogorov-Smirnova normality test revealed that the dataset was normally distributed, hence parametric inferential analysis tests were chosen.

To complement the quantitative results, the qualitative data which were collected through semi-structured interviews were subjected to content analyses (Creswell, 2012). Before starting the analysis, the recordings of semi-structured interviews were transcribed in detail and later checked by another English teacher for the purpose of cross-checking. Major categories or themes related to the participants' needs in digital assessment were specified using coding to conduct content analysis. An expert from English Language Teaching was also asked to identify themes from the codes, exhibiting close agreement with the researcher’s themes.

3.3.5 Reliability and validity. The validity and reliability of the data collection tools were ensured. For a data collection tool to be considered reliable, it should give consistent scores in repeated measurements. As a result of the analysis, it was found that the survey used to collect the quantitative data that had 23 items was highly reliable with the Cronbach Alpha coefficient value equal to .958.

As for the qualitative part of the study, peer debriefing and member checking methods were used to ensure the validity of the qualitative findings. The findings were shared with two participants at the end of the qualitative data collecting phase to make sure that the researcher's interpretations were accurate. According to Ary et al. (2010), feedback from participants allows researchers to improve their understanding and notice potential gaps in the analysis. That's why some participants were asked for their thoughts on the current study's findings. The raw data were sent to a peer studying in the same MA program with the researcher for the purpose of debriefing, and in-depth discussions were held in order to see if the researcher's explanations and interpretation of the issue were accurate.

3.4 Limitations

The results of this study might have been impacted by certain limitations. The sample size of the current study involved 123 participants working at the foundation universities in Istanbul, which may be insufficient to make generalizations. Therefore, more research with more participants including instructors from the state universities could be conducted. Additionally, the data were collected via an online survey; therefore, it is not possible to know whether the participants provided truthful answers to the questions or not. Thus, it might be better to include more data collection tools such as teacher reflections or classroom observation in order to provide a greater degree of accuracy on the subject matter. Finally, this study aimed to explore English instructors' perceptions and opinions; however, other stakeholders involved in language education at universities such as students and administrators could be added to a further study to be able to investigate the issue in more detail.

Chapter 4

Findings

This chapter presents the findings of this thesis study which aims to determine the digital assessment literacy levels of English instructors working at the foundation universities in Istanbul, the effects of certain demographic features on their digital assessment literacy levels as well as their perceptions about their needs in digital assessment. First, the quantitative results of the study are demonstrated. In the following sections, the qualitative results are presented with the samples from the data to show the perceived needs of English instructors in digital assessment.

4.1 Quantitative Data Analysis

The quantitative part of the study aimed to explore the digital assessment literacy levels of English instructors working at the tertiary level in Istanbul. It also investigated if there was a relationship between some of the demographic features and the participating instructors' digital assessment literacy. The data gathered through an online survey were subjected to descriptive and inferential statistical analyses.

4.1.1 Preparation of the dataset and normality tests. The quantitative data were created on SPSS to carry out the statistical analysis and the total score along with the mean scores were calculated. After that, a boxplot chart was created in SPSS to identify whether there were any outliers or not, and as Figure 5 demonstrates one outlier was detected and removed from the dataset.

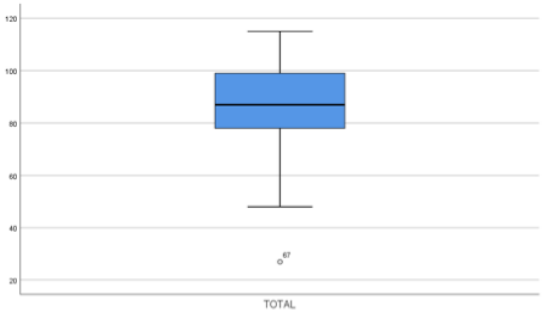


Figure 5 Outlier detected in the Digital Assessment Literacy scores.

After the removal of the outlier case, a Kolmogorov-Smirnova test was made use of in order to test the normality of the dataset considering the number of participants (n>30) (Corder & Foreman, 2009). As the Kolmogorov-Smirnova test indicated, the data set was normally distributed ($p = 0.200$, $p > .05$). Also, a visual inspection of the histogram, the normal Q-Q plot, and the boxplot demonstrated that the scores were approximately normally distributed, with skewness of -.584 and kurtosis of .656 (Cramer, 1998; Cramer & Howitt, 2004).

4.1.2 Descriptive statistics of Digital Assessment Literacy Survey. The descriptive statistics of the dataset were analyzed in SPSS, which shows the mean scores and standard deviation of each item related to digital assessment literacy. The findings of the analysis that were obtained are presented in Table 6:

Table 6

Descriptive Statistics of Digital Assessment Literacy Scale

	N	*M*	*SD*
Basic Digital Assessment Literacy			
1. I can use digital technologies for assessment: from design to drawing conclusions.	122	3.61	.89
2. I can use LMS to evaluate learners, monitor learning, obtain information on learners' progress, and plan instruction accordingly.	122	4.07	.88
3. I can produce assessment reports within LMS for various stakeholders.	122	3.51	1.16
4. I can test the effectiveness and suitability of digital assessment tools.	122	3.35	1.10
5. I can use digital technologies to provide feedback to learners and adapt teaching strategies.	122	4.11	.85
6. I can manage formative and summative assessment scoring and interpretation of results using a digital tool.	122	3.78	1.05
7. I can effectively use digital assessment data for decision-making and planning the teaching-learning–assessment processes.	122	3.78	.94
8. I can cope with the risks and ethical issues associated with the use of digital assessment tools.	122	3.51	1.00
Intermediate Digital Assessment Literacy			
9. I have a holistic view of teaching-learning-assessment and use alternative methods of digital assessment and advanced information technologies.	122	3.66	.98

Table 6 (cont.d)

	N	*M*	*SD*
10. I can use digital technologies to enhance formative assessment strategies.	122	3.83	.94
11. I can use a variety of digital assessment tools to gather information on the progress of learners.	122	3.95	.87
12. I can select assessment methods and technological tools appropriate to the learning objectives and teaching methods.	122	4.00	.82
13. I can critically assess the validity and reliability of digital assessment tools.	122	3.45	1.02
14. I can develop appropriate criteria for evaluating performance in a digital environment and use feedback and guidance to promote learning.	122	3.85	.87
Advanced Digital Assessment Literacy			
15. I always share assessment methods and evaluation criteria with learners for transparency and collaboration.	122	4.15	.92
16. I can encourage cooperative learning by having learners share their learning outcomes with their peers at all stages (digital portfolios, wikis, blogs, podcasts, and so on).	122	3.87	1.01
17. I can encourage peer evaluation with collaborative technologies while promoting the giving and receiving of high-quality feedback.	122	4.03	.89
18. I can collaborate with others as part of the assessment process, by providing access and permissions to various digital environments.	122	3.93	.94
19. I can produce rich assessment data and reflect on/re-design teaching strategies in response to the digital evidence I find.	122	3.48	1.02
20. I can encourage learners to use self-assessment and reflection, using advanced digital technologies such as writing a blog.	122	3.74	1.08
21. I can create online evaluation surveys on the learning-teaching process and use the information for self-reflection to improve instruction and assessment.	122	3.95	.99
22. I can use digital technologies to personalize feedback and support for learners.	122	4.16	.84
23. I can provide choices for learners regarding goals, tasks, information sources, and products according to personal preference while showing them a variety of options on the Internet.	122	3.98	.91
Digital Assessment Literacy Survey	**122**	**3.82**	**.96**

As shown in Table 6, the overall mean score for the Digital Assessment Literacy scale was found as 3.82, with an SD of .96, a minimum score of 1, and a maximum score of 5, which is higher than the half score (N=122, M=3.82, SD=.96, min.=1, max.=5). Therefore, it is possible to state that the participating English instructors working at foundation universities in Istanbul have a high level of digital assessment literacy.

When the items were examined closely, it was observed that the item with the highest mean score was Item 22 (M=4.16, SD=.84, min.=2, max.=5), which inquired about instructors' personalized feedback practices by using digital technologies. Similarly, Item 5, which also aimed to understand feedback practices and instruction adaption of the instructors, had one of the highest mean scores (M=4.11, SD=.85, min.=1, max.=5), suggesting that the participating English instructors working at the foundation universities in Istanbul felt competent in giving feedback with the help of digital technologies. Item 15 under Advanced Digital Assessment Literacy had the second highest mean score with a mean score of 4.15 (SD=.92, min.=1, max.=5), which implies that the instructors also felt confident about the inclusion of learners in the assessment process. Furthermore, it was observed that the majority of the participating instructors felt competent to select appropriate assessment methods and technological tools (Item 12) as well as to use LMS for assessment and evaluation (Item 2). Item 12 had a mean score of 4.00 with an SD of .82 (min.=2, max.=5) whereas Item 2, which tried to determine how much LMS was used as a digital assessment tool, had a mean score of 4.07 with an SD of .88 (min.=2, max.=5).

On the other hand, when the data collected from the Digital Assessment Literacy scale was analyzed, it was seen that the items with the lowest mean scores were related to producing assessment data, analyzing assessment tools and results along with interpreting assessment data. As is seen in Table 6, Item 4 in Basic Digital Assessment Literacy, which was about testing the effectiveness and suitability of digital assessment tools, had the lowest mean score (M=3.35, SD=1.10, min.=1, max.=5), followed by Item 13 in Intermediate Digital Assessment Literacy, which was about assessing the validity and reliability of digital assessment tools (M=3.45, SD=1.02, min.=1, max.=5). Both of these items show that the participating English instructors felt less confident about determining the effectiveness of digital assessment tools and analyzing their validity and reliability. Similarly, as the data revealed, Item 19, which addressed the production of assessment data and interpretation of digital evidence, had a lower mean score (M=3.48, SD=1.02, min.=1, max.=5) along with Item 3 which was about producing assessment reports for various stakeholders on LMS (M=3.51, SD=1.16, min.=1, max.=5). Another area that the instructors felt less competent in was dealing with the risks and ethical issues associated with the use of digital assessment tools as shown in Item 8 with a mean score of 3.51 and an SD of 1.00 (min.=1, max.=5).

Given the results of the descriptive analysis of the participants' responses, it was found that the mean score of each Item and the overall mean score of the scale (M=3.82, SD=.96) were on

the positive end, suggesting that the participating English instructors who work at foundation universities in Istanbul felt knowledgeable about digital assessment.

4.1.3 Findings of the difference in the participants' digital assessment literacy levels based on their demographic features. The second research question in the study aimed to understand if there was a difference in the digital assessment literacy levels of the instructors based on their following demographic features: years of teaching experience, educational background, being a testing member or not, and attending training in digital assessment or not. The following sections demonstrate the results collected from each variable.

4.1.3.1 Years of teaching experience. The first variable that was investigated was the relationship between the participating English instructors' years of experience and their level of digital assessment literacy. A one-way ANOVA was performed whether there was a statistically significant difference among the participants with different years of experience. Table 7 shows the descriptive statistics of the participants based on their years of teaching experience.

Table 7

Descriptive Statistics Based on Years of Teaching Experience

Years of Experience	**N**	**M**
1-5 years	27	3.95
6-10 years	25	3.79
11-15 years	27	3.64
16-20 years	17	3.87
More than 21 years	26	3.83

Table 8

Digital Assessment Literacy Based on Years of Teaching Experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.347	4	.337	.740	.567
Within Groups	53.280	117	.455		
Total	54.627	121			

As the assumption of homogeneity of variances was tested and satisfied via Levene's F test, $F(4,117)=.79$, $p=.529$, and the data distributed normally, a parametric one-way ANOVA was run. Table 8 shows that the test result was found to be statistically non-significant, $F(4,117)=.740$, $p=.56$ ($p > .05$). Therefore, it was concluded that there was no relationship between the years of experience and digital assessment literacy levels, revealing that English instructors' digital assessment literacy levels do not show significant changes based on their years of teaching experience.

4.1.3.2 ***Educational Background***. Educational background was the second variable of the second research question that was examined closely. To determine whether the participants' level of digital assessment literacy showed any differences based on their educational background, an independent samples *t*-test was conducted. The finding is presented in Table 9.

Table 9

Digital Assessment Literacy Based on Educational Background

	N	*M*	*SD*	*t*	*df*	*p*
Graduate	78	3.92	.61	2.347	120	.021
Undergraduate	44	3.62	.73			

Although the mean scores of each group showed some slight differences, to test whether these differences were statistically significant, inferential statistics were used. Since the data were normally distributed, and the assumption of homogeneity of variance was met with Levene's F test, $F(120)=1.11$, $p=.294$, a parametric independent samples *t*-test was used. As shown in Table

9, the result of the independent samples *t*-test was found statistically significant, $t(120)=2.34$, $p=.021$ ($p < .05$). Therefore, it is possible to say that there is a significant difference between the scores of the participants who have a graduate degree (M=3.92, SD=.61) and the ones who have an undergraduate degree (M=3.62, SD=.73).

4.1.3.3 ***Being a testing member or not***. The third variable that was investigated as part of the second research question was being a testing member. The participants were asked whether they worked in a testing office before or not. Since the normality test showed that the data were normally distributed, to test if there was a difference in the participants' digital assessment literacy based on being a testing member or not, an independent samples *t*-test was performed. The findings are presented in Table 10.

Table 10

Digital Assessment Literacy Based on Being a Testing Office Member or Not

	N	***M***	***SD***	***t***	***df***	***p***
Yes	51	3.85	.59	.565	120	.573
No	71	3.78	.72			

First, the assumption of homogeneity of variances was tested and met via Levene's F test, $F(120)=1.86$, $p=.175$. As can be seen in Table 10, the result of the independent samples *t*-test was found statistically non-significant, $t(120)=.56$, $p=.573$ ($p > .05$). Thus, the results of the analysis indicated that there was not a statistically significant difference between the scores of the participants who worked in a testing office (M=3.85, SD=.59) and the ones who did not (M=3.78, SD=.72).

4.1.3.4 ***Attending training in digital assessment or not***. The final variable to be examined was whether attending training in digital assessment had an impact on the participants' digital assessment literacy. The participants were asked whether they had attended any training in digital assessment before or not. In order to understand if there was a relationship between the

participants' digital assessment literacy and attending training in digital assessment, an independent samples t-test was utilized. The findings are shown in Table 11:

Table 11

Digital Assessment Literacy Based on Attending Training in Digital Assessment or Not

	N	***M***	***SD***	***t***	***df***	***p***
Yes	48	4.12	.63	4.313	120	.000
No	71	3.61	.62			

After the assumption of homogeneity of variances was tested and met via Levene's F test, $F(120)=.16$, $p=.686$, the independent samples *t*-test was conducted. This test was found to be statistically significant, $t(120)=4.31$, $p=.000$ ($p < .05$), $d=.81$. The effect size for this analysis ($d=.81$) was found to exceed Cohen's (1988) convention for a large effect ($d=.80$). These results indicate that there was a statistically significant difference between the scores of the participants who attended training in digital assessment (M=4.12, SD=.63) and the ones who did not (M=3.61, SD=.62).

To sum up, the second research question of this thesis study aimed to understand if there was a difference in the participants' digital assessment literacy based on some of their demographic features such as years of experience, educational background, being a testing office member or not and attending training in assessment. As the results indicated, the participants' years of teaching experience did not have an impact on their digital assessment literacy levels. Moreover, the participants who have not worked in a testing office were found to be as competent in digital assessment as those who have worked in a testing office. Therefore, it is possible to conclude that working in a testing office does not significantly impact the digital assessment literacy levels of the English instructors. On the other hand, holding a graduate degree affected the participants' digital assessment literacy levels positively. The mean scores of the participants who hold a graduate degree (M=3.92, SD=.61) were higher than the ones with an undergraduate degree (M=3.62, SD=.73), and the inferential statistics showed that these differences were significant. In addition, attending training in digital assessment was found to have an impact on the digital assessment literacy levels of the instructors. The findings showed that those who attended training

in digital assessment had a higher level of digital assessment literacy compared to the ones who did not attend any training.

4.2 Qualitative Data Analysis

The qualitative part of the study aimed to grasp a better understanding of the participants' perceptions about their digital assessment literacy levels as well as their needs in digital assessment. Semi-structured interviews were conducted with 10 participating English instructors who work in foundation universities in Istanbul. The interviews were carried out in English and recorded online via Zoom. The data collected from ten interviews were subjected to inductive content analysis in order to further explore English instructors' digital assessment literacy and their perceptions regarding their needs in digital assessment.

4.2.1 Instructors' perceptions about their digital assessment literacy. The participating instructors were asked how much an English instructor should know about digital assessment. Almost all the participants agreed that digital assessment is a critical part of English teaching to evaluate learners and provide effective feedback, especially after the pandemic as shown in the excerpts below:

> […] The world is changing. Yesterday we had the skills group meeting, and the meeting was about how they can transform the reading skill into the digital platform. So I mean, as I said before, things are changing and unfortunately, it's successful so everyone should know. (Interviewee 6, Interview Data, 19.03.2022)
>
> […] After this pandemic, I think digital literacy is everything for an English instructor. Because, for example, at our university, we are maintaining a hybrid system, so we have like three days of face-to-face classes and two days of online classes and we assign most of the tasks on digitalized platforms, the learning management system, so it is very important to know all kinds of digital assessment use to be able to use these platforms, to monitor their students. (Interviewee 8, Interview Data, 04.04.2022)

Following the discussion on the importance of digital assessment literacy for English instructors, the participating instructors were asked to rate their digital assessment literacy from *not very competent* to *very competent* in order to investigate the perceptions of their own digital assessment literacy. 7 out of 10 instructors stated that they found themselves *competent* in terms of digital assessment literacy whereas 2 of the instructors described their digital assessment knowledge as *somewhere between competent and very competent*. Only one of the participating instructors asserted that she found herself not very competent in digital assessment.

In brief, it can be stated that most of the participating instructors had the opinion that digital assessment has become an indispensable part of English teaching, especially after the sudden transition to online teaching due to the pandemic; therefore, all English instructors should be familiar with digital assessment to some extent. Also, most of them stated that they made use of some digital assessment tools and strategies and felt confident in digital assessment.

4.2.2 Instructors' perceptions about their needs in digital assessment. The 10 participating instructors were asked some questions to gain a better understanding of their perceptions of their needs in digital assessment. Based on the content analysis carried out, the following themes and sub-themes emerged:

Table 12

The Emerging Themes Based on Instructors' Perceptions about Their Needs in Digital Assessment

Themes	Sub-themes
Institutional Support	Technical and Financial Support
Curriculum Alignment Needs	Skills Alignment Needs
	Task Types Alignment Needs
Training Needs	Training in Administrative Issues
	Training in Digital Assessment Tools and Strategies
	Training in Analyzing and Interpreting Digital Data

4.2.2.1 ***Perceptions about institutional support***. The data gathered from the interviews indicated that almost all participants saw themselves as competent in digital assessment; however, some of the participants also emphasized the importance of getting institutional support to better make use of digital assessment. This point of view was supported by the sub-theme summarized in the next section of this thesis study. The emerged sub-theme is as follows:

4.2.2.1.1 *Technical and financial support*. Based on the interview data, the participating instructors expressed that the technical and financial support that is provided by universities is essential in using a variety of digital assessment tools. In terms of technical support, some of the participants stated that it was helpful to get IT help and reach paid tools when needed, particularly during the formal assessment, as presented in the following excerpts:

> […] Our system allowed, you know, a limited or how can I say we had IT people supporting us so every section was opened at a certain time and closed at a certain time so students, If they were trying to do something tricky, they didn't really have that much wiggle room, so it was good for IT to help us with that. (Interviewee 7, Interview Data, 19.03.2022)
>
> […] Our system was open to a lot of abuse by the students. And to compensate that we got support from IT, we use lockdown browsers, and we use respondent programs to make sure that students do not cheat in the exams. (Interviewee3, Interview Data, 12.03.2022)

In terms of financial support, the instructors expressed there should be more financial help provided by universities in order for instructors to make better use of digital assessment as shown in the following excerpts:

> […] I would love to develop myself more in digital assessment, and I am sure that there are still things that I'm not aware of, but for this, I think teachers need a lot of support from schools as well, in many ways, time and money. (Interviewee 1, Interview Data, 06.03.2022)
>
> […] After the pandemic, we were introduced to some digital assessments tools by the publishers and they introduced the university their testing systems, how you can test the

> students digitally in a safer way, and yes, some of them have high technology such as face recognition technology, eye recognition technology if students look at somewhere else and the system sees and warns the students so it's cool, but you know it's very expensive so actually, the university didn't accept it, you know, because our university okay it's the foundation university, but not that rich. (Interviewee 9, Interview Data, 09.04.2022)
>
> […] I used to use Kahoot but these days I can't because now there is a limit for free accounts. It only allows 10 players, and I can't use it in my classroom anymore. (Interviewee 2, Interview Data, 12.03.2022)
>
> […] In my opinion, the schools, that are financially in better shape they're luckier. Because they were able to buy programs, tools, exams... in our school, we didn't have that chance we're not as lucky as those schools. (Interviewee 6, Interview Data, 19.03.2022)

Overall, most of the participants expressed the need to get both technical and financial support from the universities where they work to be able to integrate digital assessment into their practice more effectively and confidently.

4.2.2.2 ***Perceptions about curriculum alignment needs***. The data collected from the interviews revealed that the forced transition to online teaching and digital assessment required certain changes in skills that were tested as well as some task types that were used. Therefore, some of the participating instructors expressed that they did not feel content with the lack of alignment between teaching, learning, and assessment while using digital assessment, especially during the formal assessment. These viewpoints showed that there was a need to better align digital assessment practices with the existing curriculum and pedagogical practices. The emerged sub-themes are as follows:

4.2.2.2.1 *Skills alignment needs*. The data gathered from instructor interviews demonstrated that although most of them perceived themselves as competent in digital assessment, some felt limited in terms of skills that they were testing while using digital assessment strategies and tools. Another issue ascertained from the interviews was that the instructors were not a part of the decision-making process in spite of their roles as the practitioners of these decisions.

> […] After the pandemic for online education, we couldn't have a note-taking part. That was my biggest regret. I was really upset because I find note-taking and listening very important skills for university students, but it was going to raise an issue of cheating, so we had to cancel that task, for example, no more note taking. (Interviewee 6, Interview Data, 19.03.2022)
>
> […] At the same time, we decreased the number of assessments. And we had more weighting for the speaking. Because I mean it wasn't me, but it was the coordinator, who kind of checked the reliability of the sections and she concluded that the highest reliability was with the speaking part of it, that's why we increased the weighting of the speaking more. (Interviewee 4, Interview Data, 14.03.2022)

In brief, it can be said that the policy changes that were made in assessment components and their weighting resulted from the unexpected transition to online teaching and assessment, which had an impact on the teaching and learning practices. In addition, most English instructors did not take an active role in deciding the changes made in assessment during the critical transition period.

4.2.2.2.2 *Task types alignment needs*. Another issue raised by the participating instructors was the change in task types with the use of digital assessment. Some of the instructors commented that the task types did not fully reflect what they did in the classroom, which included more open-ended and short-response questions by reinforcing critical thinking and production.

> […] Some of the tasks were excluded, some of the exams are not appropriate for online settings. Therefore, they were excluded from the assessment procedures and some item types were changed. And that's how it was affected, we couldn't test some of the things we wanted to test. (Interviewee 5, Interview Data, 15.03.2022)
>
> […] I think that we should focus more on activities or items, questions that will require the students to think and do research. This was my opinion, and I suggested some activities such as summary response papers where students would be able to synthesize the information and everything, but unfortunately, these things have some administrative processes as well, for example, you have to create a new rubric for such a new assessment

> item and lots of other considerations should be taken into account and that's why we didn't have enough time to implement these things. (Interviewee 3, Interview Data, 12.03.2022)
>
> […] I wish we could change the task types and we are planning… actually. We might have a few more short answer questions now because we are planning to go back to the paper-based. I don't know, maybe we could have more short answer questions in online exams too. (Interviewee 4, Interview Data, 14.03.2022)

As it is clear from the comments above that the instructors felt the need to add more variety to the task types instead of having all multiple-choice or true-false exams; however, because of certain administrative and technical issues such as time and grading, it was not possible to integrate them.

4.2.2.3 ***Perceptions about training needs***. The last theme that emerged from the interview data was related to the instructors' perceptions about their training needs in digital assessment. The participating instructors highlighted that even though almost all of them feel confident in assessing learners digitally, they still need some training in digital assessment partly because of the fast-changing nature of digital technologies. The following section summarizes the emerged sub-themes in detail.

4.2.2.3.1 *Training in administrative issues*. The interview data revealed that almost all the instructors felt discontent with the fact that using digital technologies to assess learners, especially for formal assessment, has caused some ethical issues. In line with the quantitative data, the participating instructors did not feel very competent in how to cope with the ethical issues resulting from the use of digital assessment tools. Some of the instructors also mentioned that they were not quite sure about the laws and regulations regarding the use of videos and recordings during exams as well as cheating incidents, which shows that the instructors did not contribute to the decision-making on how to deal with administrative and ethical issues. Therefore, it is clear that English instructors should take part in seeking solutions for the challenges of digital assessment and get clearly informed and trained about the decisions made afterward. The following comments by the instructors support this need:

> […] I mean schools and instructors were not ready to give online exams. Unfortunately, our students have a tendency to cheat, and for that reason…Well… some students cheated and for some reason, we couldn't prove that they had cheated… In that exam, the cameras were on while they were working on the LMS but still, it wasn't easy to follow them. For example, in my classes, I had 25 students, but I couldn't see all of them on my screen. Or sometimes, I warned them, but they said they were looking at their screen. So, it wasn't easy to control them. (Interviewee 2, Interview Data, 12.03.2022)
>
> […] I don't know why my institution, you know, didn't want to force students to turn their camera on and record those exam sessions that's why, you know, we gave tests and cameras were off and we didn't know if the test takers were our students or not. (Interviewee 4, Interview Data, 14.03.2022)
>
> […] The laws regarding the personal space and recording people etc. these things might have made it difficult for us to, especially during the in-course assessments, where we couldn't ask students to turn on their cameras because it was being recorded, who knows what was going on, so. (Interviewee 7, Interview Data, 19.03.2022)
>
> […] Let's say you're the student and I'm your teacher, we're doing the speaking assessment, you are speaking I'm hearing, but I also start to hear another voice. But I can't justify it, there's no evidence, but I'm hearing small noises. And we were like okay, she's cheating, but how are we going to prove this, there's no way of proving it. Somehow we told the students there was some kind of technical problem, connection problem, that's why her exam was canceled, we had to reevaluate it. (Interviewee 6, Interview Data, 19.03.2022)

As the comments demonstrate, almost all the participating instructors mentioned that digital assessment was open to abuse and cheating, and there was no clear communication of laws and regulations regarding ethical issues to the instructors. Thus, they felt that they did not have the necessary tools or knowledge to deal with these ethical issues on their own.

4.2.2.3.2 *Training in digital assessment tools and strategies*. When the participating instructors were asked directly about their needs in digital assessment, 70 % of them mentioned that they would like to have training in digital assessment tools and strategies. As it can be inferred

from the interview data, the participants felt the need for training in digital assessment tools to follow the trends but more importantly to come up with solutions to the everyday challenges that they were facing such as the lack of variety in task types or academic dishonesty.

> […] Well, I'd like to learn more about the ways, the methods to prevent cheating because this is one of the main problems we have been experiencing so far and I would also like to learn more about incorporating different types of questions into Moodle quizzes and exams. Because there are some tasks that we can't really include… (Interviewee 5, Interview Data, 15.03.2022)
>
> […] I'd like to learn about digital assessment tools because I'm not really following what kind of new tools to assess students are coming up, I would have to adopt some more things, especially in class assessment so I'd love to learn about new tools and any technical things about different assessment types that could be integrated into the digital systems. (Interviewee 7, Interview Data, 19.03.2022)
>
> […] Everyday program programs are updating themselves so we cannot catch up so I can never say I'm perfect, very competent. So I'm trying to update all the time, I'm trying to follow, but it's changing rapidly so it's difficult to catch up. (Interviewee 6, Interview Data, 19.03.2022)
>
> […] I'd love to learn more about tools and strategies. There are more efficient ways to give feedback and to get things done so… we can save time, you know we are kind of having item banks tools and everything, so it might help with this, I would like to learn about this, of course, and you can shuffle sections and questions and then maybe it may help with these cheating issues and such. (Interviewee 4, Interview Data, 14.03.2022)

In brief, it can be said that depending on their institutional contexts, most of the participating instructors stated a need for training in digital assessment tools and strategies for various reasons such as incorporating different task types and preventing cheating.

4.2.2.3.3 *Training in analyzing and interpreting digital data*. In parallel with the quantitative data, some of the instructors expressed that they did not perceive themselves as very competent in terms of analyzing and interpreting data collected from formal or informal digital assessment. 30

% of the participating instructors said that they would like to get trained in how to analyze and interpret digital data as shown in the comments below:

> […] If I can better analyze and interpret data, I think I can better meet their expectations and needs maybe, find easier solutions. There can be better communication between me and the students. Maybe I can adapt my materials more efficiently, and I can maybe develop better strategies to teach students. (Interviewee 1, Interview Data, 06.03.2022)
>
> […] I'd like to learn more about interpreting and analyzing digital data because If I can analyze the data in a more effective way, I can effectively identify students who need more help, and I can provide better solutions and feedback. If I can analyze data better, I can use that information to help my students more. (Interviewee 2, Interview Data, 12.03.2022)

In short, as the comments demonstrate, the instructors believed that analyzing and making sense of assessment results would help them improve teaching and learning; therefore, it is essential to learn about how to analyze and interpret digital data and reflect on these to adapt teaching and learning if necessary.

4.3 Integration of Quantitative and Qualitative Findings

In this section, both quantitative and qualitative data that were collected through different data collection tools are brought together in order to present the findings of this thesis study in a more holistic way.

4.3.1 Findings about the digital assessment literacy level of English instructors working at foundation universities in Istanbul. As the descriptive analysis of the quantitative data indicated, the participating English instructors who work at foundation universities in Istanbul had a high level of digital assessment literacy (N=122, M=3.82, SD=.96, min.=1, max.=5). In parallel with the quantitative results, the interviews that were conducted with 10 English instructors also supported that almost all the participating instructors perceived themselves as competent in digital assessment.

4.3.2 Findings about the difference in the digital assessment literacy of English instructors based on their demographic features: Years of teaching experience, educational background, being a testing member or not, and attending any training in digital assessment. According to the results of the one-way ANOVA test, there was no statistically significant difference between the participants' digital assessment knowledge and their years of teaching experience. This was also reflected in the interviews, in which almost all instructors felt confident in terms of digital assessment despite having different years of teaching experience.

As for the effect of educational background on the level of digital assessment literacy, the instructors with a graduate degree had higher mean scores, and the independent samples *t*-test results showed that there was a statistically significant difference between the participants with a graduate degree and the ones with an undergraduate degree in terms of their digital assessment knowledge.

On the other hand, no statistically significant difference was detected in the digital assessment literacy levels of the instructors who have worked in a testing office and the ones who have not. In line with the quantitative data, the interviews half of which were carried out with the instructors who have worked in a testing office indicated that instructors who have not worked in a testing office considered themselves as confident as the ones who have worked in a testing office.

Finally, a statistically significant difference in the digital assessment literacy levels of the instructors was found between the instructors who got training in digital assessment and the ones who did not. As the result of the independent samples *t*-test demonstrated, attending training in digital assessment had a significant impact on the participants' digital assessment knowledge.

4.3.3 Findings about the perceptions of English instructors about their needs in digital assessment. Even though almost all the participating instructors perceived themselves as competent and knowledgeable in digital assessment, the in-depth inductive analysis performed with the interview data indicated that they had certain needs in digital assessment as categorized under three main themes: institutional support, curriculum alignment needs, and training needs. As for the institutional support, the instructors felt the need to be supported both financially and technically to be able to reach the latest technology and training in digital assessment. Similarly, some of the instructors expressed that they did not feel as confident in terms of integrating certain skills and task types that they wanted to test. They commented that they wanted to have an alignment between the curriculum and assessment. Finally, they stated that they needed more

training regarding digital assessment, especially in administrative issues, digital tools and strategies as well as analyzing and interpreting digital data. This need for further training can also be observed in the quantitative results, where the lowest mean scores are in analyzing the effectiveness of digital tools, interpreting results, producing reports, and coping with ethical issues.

To sum up, both the quantitative and qualitative findings suggested that the participating English instructors perceived themselves as competent in terms of digital assessment literacy, and their demographic features did not have a significant effect on their level of digital assessment literacy except for attending training in digital assessment. It was also seen that despite feeling confident, the instructors still expressed certain needs with regard to digital assessment.

Chapter 5

Discussion and Conclusions

This chapter presents the discussion of this thesis study which explores the digital assessment literacy levels of English instructors working at the foundation universities in Istanbul, the effects of certain demographic features on their digital assessment literacy levels along with their perceptions about their needs in digital assessment. Pedagogical implications, a conclusion, and recommendations for future research are also presented in this chapter.

5.1 Discussion of Findings for Research Questions

This thesis study aimed to scrutinize the digital assessment literacy levels of English instructors who work at foundation universities in Istanbul, Turkey. Additionally, it was investigated whether there was a difference in the digital assessment literacy levels of English instructors based on the following demographic features: years of experience, educational background, being a testing office member and attending digital assessment training. The study also explored the perceptions of the participating English instructors regarding their needs in digital assessment thoroughly. The quantitative data were collected by an adapted Digital Assessment Literacy Scale while semi-structured interviews were used to gather the qualitative data. In the first section of this chapter, both the quantitative and qualitative findings are discussed in relation to the relevant research question.

5.1.1 Discussion of the findings of RQ1: What is the digital assessment literacy level of English instructors working at foundation universities in Istanbul? The first research question of this thesis study aimed to measure the digital assessment literacy levels of the English instructors working at foundation universities in Istanbul, Turkey. The quantitative data indicated that the participating English instructors had a high degree of digital assessment literacy, which was in line with the quantitative findings. The semi-structured interviews with ten English instructors revealed that almost all the participants considered themselves to be proficient in digital assessment.

When the literature is reviewed, it can be observed that most of the existing studies on digital language assessment literacy found English instructors did not consider themselves competent in terms of digital assessment literacy. To begin with, Rezai et al. (2021) conducted a study to understand the Iranian university teachers' perceptions of the fundamentals of language assessment literacy by using a phenomenographic study. The findings of their study showed that the instructors considered digital assessment knowledge as an integral part of language assessment literacy; however, most of the participants did not feel confident in the use of digital language assessment. In another study that was conducted by Tian et al. (2021) in the Asian context, the language assessment literacy levels of three participant-researchers were explored during the school shutdowns due to the Covid-19 pandemic. The study indicated that the participants initially did not feel confident in terms of digital assessment literacy because it required a high level of assessment literacy combined with a high level of digital literacy. However, over time, with some of the training and reflections with their colleagues, they stated that they felt more competent, but it was still challenging to put their knowledge into practice owing to certain external factors such as the class size and connection problems. Similarly, Husain (2021) carried out a study to probe the need for training to be able to create reliable and valid online assessments and to have more assessment literate instructors. He found that even experienced instructors lacked adequate digital assessment literacy, and they needed to be trained to enhance their digital assessment skills and to train other instructors. Moreover, a study that was conducted in Jordan by Sa'di et al. (2021) aimed to find out if the universities in Jordan were ready to effectively assess their students digitally during the lockdown caused by Covid-19. They found that despite the training that was provided in online teaching and digital summative assessment, most of the participants stated that not all professors were ready to create digital assessments to evaluate their students.

When the findings of this thesis study are compared to the findings of the above-mentioned studies on digital assessment literacy, it is seen that the findings of the current study contradict the findings of the existing literature. This contradiction might result from the time the studies were conducted. As is seen in the previous paragraph, all the mentioned studies were published in 2021, indicating that the data were collected not long after the abrupt transition to online teaching and thereby online assessment due to Covid-19, which broke out in the last month of 2019. At first, most of the educational intuitions all around the world could not quickly respond to the need for changes in assessment processes which were seriously interrupted because of the lockdowns.

However, the policymakers and educational institutions made some decisions and adapted their programs to the novel conditions brought by the pandemic. The current study, on the other hand, was conducted in 2022, which was almost two years after the pandemic hit. Therefore, at the time of the data collection process of this study, the foundation universities in Istanbul had more experience in digital assessment and policies regarding the administration of the digital assessment, which was also the case for the English instructors who work for these universities.

When it comes to the Turkish context, the issue of English instructors' digital assessment literacy levels has not been researched before; however, there have been many studies that explored English instructors' assessment literacy levels at the tertiary level (Kaya, 2020; Mede & Atay, 2017; Ölmezer-Öztürk & Aydın, 2019; Sevilen, 2021). Although these studies did not examine the digital aspect of assessment, they might still give insight into the instructors' overall assessment literacy levels. First of all, Mede and Atay (2017) undertook a study focusing on the language assessment knowledge and training needs of EFL instructors who worked in English preparatory programs at universities. The results of this study revealed that EFL instructors working at universities had a limited level of language assessment literacy. In line with this research, Ölmezer-Öztürk and Aydın (2019) also found that Turkish EFL instructors' knowledge of language assessment was inadequate, and they needed training in several areas. On the other hand, using the same scale that Ölmezer-Öztürk and Aydın (2019) used, Kaya (2020) examined the skill-based language assessment literacy of EFL instructors and found that the participants had a high level of language assessment literacy. Similarly, Sevilen (2021) conducted a study to explore EFL instructors' language assessment literacy as well as students' perceptions of assessment in English preparatory programs. The results demonstrated that the participating instructors had a high level of language assessment knowledge and students were also aware of the assessment processes at the universities.

The findings of the current study contradict the findings of Mede and Atay (2017) and Ölmezer-Öztürk and Aydın (2019), which may derive from the different focus of the current study. To begin with, as mentioned before, this study was conducted after foundation universities had two years of experience in online teaching and assessment. The universities had to quickly adapt to the new learning and assessment environment while preparing and training their instructors at the same time. This move might have affected the digital assessment literacy levels of the instructors. The sample of this study might be another factor affecting the findings. This study only

focused on the instructors who work at the foundation universities in Istanbul, which is also the case with Kaya's (2020) study. Thus, it is possible to state that the foundation universities might have more opportunities to reach resources with regard to digital assessment compared to state universities and universities in other cities. In addition, this might be explained by the fact that most of the instructors were already familiar with some of the digital tools that are used for formative assessment. Therefore, it is possible to say that there was a planned transition to the use of technologies to some extent unlike the crisis-prompted online summative assessment (Gacs et al., 2020). Consequently, the integration of digital assessment was not totally a new experience for most instructors.

In brief, the current study showed that the English instructors working at foundation universities in Istanbul had a high level of digital assessment literacy, which is not consistent with the findings of the existing literature on digital assessment literature (Husain, 2021; Rezai et al., 2021; Sa'di et al., 2021; Tian et al., 2021). As for the Turkish context, no study has been found that focused on the digital assessment literacy of English instructors, yet the findings of the current study were found to be in line with some of the studies examining the overall assessment literacy levels of instructors (Kaya, 2020; Sevilen, 2021).

5.1.2 Discussion of the findings of RQ2: Is there any difference in the digital assessment literacy of English instructors based on the following demographic features (years of teaching experience, educational background, being a testing member or not, and attending training in digital assessment)?

The second research question of the current study aimed to find out whether there was a difference in the digital assessment literacy of English instructors based on certain demographic features including years of teaching experience, educational background, being a testing member and attending training in digital assessment. The findings revealed that having a graduate degree and attending training in digital assessment had a positive impact on the participants' digital assessment literacy. The other two variables which are years of teaching experience and being a testing member were found to have no significant effect on the digital assessment literacy levels of the participating instructors.

The first variable to be explored in the second research question was the participants' years of teaching experience. The results showed that there was no statistically significant difference among the participants with different years of experience. When the literature was reviewed,

Husain's (2021) study was found, which touched upon the effect of years of teaching experience on digital assessment literacy. It was found that even experienced instructors lacked digital assessment literacy and they needed further training on the subject, which is in line with the finding of the current study. In another study, Karademir et al. (2020) examined the challenges of higher education institutions against Covid19 by looking into the experiences and opinions of academics, Distance Education Center managers, students, and parents. It was revealed that younger instructors with less teaching experience were generally more competent in utilizing technological tools in teaching and assessment and in adapting well to the conditions brought by distance education. As it can be seen, the findings of this study are contradictory to the findings of the current study. As mentioned before, this might result from the fact that the current study is limited to the foundation universities in Istanbul, and most of these universities had the means and resources to adapt to the abrupt transition to digital assessment. Moreover, the language programs of these universities were already making use of many ICT tools and learning management systems to assess their learners both formally and informally. Although there is no study focusing on the effect of years of teaching experience on digital assessment literacy in the Turkish context, there are some studies that looked into the impact of experience on the overall assessment literacy levels of English instructors (Kaya, 2020; Ölmezer-Öztürk &Aydın, 2019; Sevilen, 2021). Ölmezer-Öztürk and Aydın (2019) explored EFL instructors' assessment literacy levels as well as the effect of the years of teaching experience, and they found that being an experienced or a novice instructor had no statistically significant effect on assessment literacy. Similarly, Kaya's (2020) findings showed that the years of teaching experience did not impact the EFL instructors' assessment knowledge. Finally, Sevilen (2021) researched the effect of demographic features and their effect on the EFL instructors' assessment literacy. It was also found that there was no relationship between the EFL instructors' years of teaching experience and their level of assessment knowledge. In short, despite the lack of focus on digital assessment, the findings of these studies are line with the findings of the current study, indicating that the years of teaching experience did not impact English instructors' digital assessment literacy.

Educational background was the second variable that was investigated in the current study. The quantitative data analysis revealed that having an MA, or a Ph.D. degree had a positive effect on the participating instructors' digital assessment literacy. The finding of the current study is contradictory to the existing literature. Husain (2021) showed that having different qualifications

or degrees did not impact the instructors' digital assessment literacy, and even the participants with an MA degree lacked the necessary knowledge in digital assessment. Similarly, this finding is not in line with the studies on the overall assessment literacy of EFL instructors (Kaya, 2020; Ölmezer-Öztürk & Aydın, 2019). The studies by Kaya (2020) and Ölmezer-Öztürk and Aydın (2019) indicated that having different academic qualifications did not affect the EFL instructors' assessment literacy levels. The courses offered at available MA and Ph.D. programs in Turkey should be investigated further to understand the impact of graduate programs on digital assessment literacy.

Another demographic variable that was explored within the second research question was whether being a testing office member had an impact on English instructors' digital assessment knowledge. According to the findings of this study, there was no statistically significant difference between the instructors who have worked as testing office members and the ones who have not. Although the effect of being a testing member has not been researched in the context of digital assessment literacy before, there are a few studies in the Turkish context that explored how being a testing office member impacted EFL teachers' overall assessment literacy, which may provide insight to a certain extent. To start with, Ölmezer-Öztürk (2018) collected data from 542 EFL instructors who worked in universities across Turkey and compared the assessment literacy knowledge of instructors who had worked as testing office members and the ones who had not. The results showed that being a testing office member had a statistically significant impact on the assessment literacy levels of the participating instructors. Similarly, according to Sevilen (2021), EFL instructors who had testing office experience were found to be more knowledgeable than the ones who did not work in a testing office. The findings of the mentioned studies contradict the results of the current study. One possible explanation is that the overall assessment knowledge creates a significant gap between instructors and testing office members because testing office members have probably had a lot of training and experience in traditional assessment. However, when it comes to digital assessment practice, the transition to digital assessment was novel for both instructors and testing office members, which may explain the bridged gap in terms of digital assessment literacy. As a result of the circumstances forced by Covid 19, both instructors and testing office members had to adapt to digital assessment at the same. However, there is still a need for more research to reach a conclusive explanation.

The last variable that was examined in the second question was attending training in digital assessment. The findings showed that the instructors who attended training in digital assessment had a higher level of digital assessment knowledge compared to the ones who did not have any training. When the literature was reviewed, it was seen that there was no study investigating the effect of attending training on digital assessment literacy. On the other hand, the studies that explored the overall assessment literacy showed that attending assessment training did not create a significant positive impact on instructors' assessment literacy levels (Kaya, 2020; Mede & Atay, 2017; Ölmezer-Öztürk, 2017; Sevilen, 2021). The contradiction between the findings of these studies and the current study might result from urgent challenges and thereby urgent digital assessment training due to Covid 19. It is likely that the digital assessment training provided to the instructors could be to-the-point training that was targeted at responding to the specific challenges brought by the sudden transition to online teaching and online assessment.

5.1.3 Discussion of the findings of RQ 3: What are the perceptions of English instructors about their needs in digital assessment? The purpose of the third research question was to find out English instructors' perceptions about their needs in digital assessment. To gather the relevant data regarding their perceived needs, semi-structured interviews were conducted with 10 study participants. The findings obtained through the semi-structured interviews showed that almost all the participating instructors considered themselves to be competent and knowledgeable in digital assessment; however, they still stated that they had certain needs. The detailed content analysis of the interview data revealed that they had three main needs in digital assessment: institutional support, curriculum alignment needs, and training needs. Within the first occurring theme, institutional support, the instructors believed the institutions should provide both financial and technical assistance for English instructors to access the most up-to-date technology and training in digital assessment. Secondly, several instructors raised concerns about the lack of incorporation of certain skills and task types that they considered necessary to be tested. They mentioned that they wanted the curriculum and the evaluation to be in line. As for the last theme, both quantitative and qualitative data demonstrated that the participating instructors needed further training in digital assessment under three main categories, which are administrative issues, digital tools and strategies as well as analyzing and interpreting digital data.

To begin with, the majority of the participants stated the need for more support provided by higher education institutions. Most digital tools that are utilized for assessment purposes have limited options when used with free accounts, and some of the instructors may need IT support while making use of these digital technologies. Thus, it is critical that instructors working at higher education institutions are provided with the necessary administrative assistance in the form of sufficient budgets and IT support to be able to create effective and sustainable assessment processes (Chung & Choi, 2021). In the Turkish context, Karademir et al. (2020) found that the sudden transition to online education and online assessment brought many challenges for universities across Turkey. Universities depended on external services because they did not have their own learning management system or the necessary infrastructure and tried to use the free services such as Google Meet because of budget constraints, yet these free service providers offer limited usages such as maximum simultaneous user accounts or bandwidth. It was also revealed that during this abrupt transition, academics who felt less confident were provided with online and offline training, and they got help from support personnel; however, some of the participants stated that it was not enough to ensure the successful implementation of online teaching and testing, because these trainings were focused only on the technical side. Ghanbari and Nowroozi (2021) examined the online assessment practices of Iranian EFL instructors and pointed out the lack of institutional support, especially at the beginning of the pandemic. They mentioned that the instructors did not get any financial help from their institutions to purchase the basic equipment necessary for online teaching and assessment. Sa'di et al. (2021), on the other hand, researched e-assessment practices at universities in Jordan and underlined that the instructors did not have the necessary financial support from their institutions for the technologies preventing cheating such as e-test invigilation software and plagiarism detection tools. As is seen, the finding of the current study is in line with the existing literature which is also indicative of the fact that without the financial and technical support from higher education institutions, instructors are limited in what they can achieve in terms of quality digital assessment.

The second theme that emerged as a result of the detailed content analysis was the curriculum alignment needs. The interview data revealed that some of the participating instructors were concerned about the misalignment between the curriculum and assessment during digital assessment processes. Constructs that are not assessed have a washback effect on learners as much as constructs that are tested because assessment creates a strong instrumental motivation for

learners (Tsagari, 2007). However, the sudden transition to digital assessment forced universities to adapt their construct definitions to the new conditions and limitations brought by the digital environment. To illustrate, some universities excluded the note-taking skill in their examinations and some of the open-ended tasks that were aligned with the curriculum outcomes were also taken out due to the workload and timing issues, all of which created discontent among instructors to some extent. This finding is in line with the study by Timmis et al. (2015), who noted that assessment policies and practices should be aligned with the curriculum priorities, which is essential to create a positive impact on learning and teaching. This misalignment with the priorities of the curriculum may also damage the construct validity of examinations, which refers to content representativeness and relevance (Messick, 1989). Construct validity was defined as the most critical part of validity theory by Shepard (1993) as a weak content validity would raise questions about the test use, interpretation of results, and test fairness. Therefore, along with reliability, ensuring the validity of examinations should be one of the priorities in assessment processes. However, as suggested by Rezai et al. (2021), ensuring the validity of an examination is a complicated, time-consuming, and costly process for higher education institutions and instructors.

The final theme that emerged in the content analysis was the English instructors' perceptions regarding their training needs in the area of digital assessment. The inductive analysis showed that there were three main reoccurring subthemes in the collected interview data, which were training needs in administrative issues, digital assessment tools and strategies as well as analyzing and interpreting digital data. The first subtheme, training in administrative issues, was mentioned by almost all the participating instructors who underlined the issues of academic integrity as one of the main challenges of digital assessment. The quantitative data also revealed that English instructors did not feel confident in dealing with the ethical and legal issues brought by the abrupt transition to digital assessment. Moreover, they raised their concerns over the lack of readiness on the part of higher education institutions as well as the lack of legal and ethical clarity on how to approach issues in academic integrity and exam safety. As is clear from the qualitative data, English instructors were not active participants in the decision-making process, and they were not clearly informed about the laws and the reasons behind them, which caused vagueness as well as discontent on the part of instructors as practitioners. The lack of inclusion of instructors and the lack of clear communication of the laws and regulations might result in a lack of motivation and even resistance to digital assessment, as it may be perceived as a top-down decision (Raaheim,

2019). The finding of the current study demonstrated that English instructors should be supported by their institutions and trained on how to deal with ethical issues, as without *ethical readiness*, it is not very likely to design reliable assessment, which is one of the core principles of assessment. Reliability, a part of the assessment of validity, was described as "consistency and stability in language assessment" by Chapelle (2013, p.4918), thereby it could be impacted negatively by concerns over academic integrity and exam security. The finding of the current study is in parallel with the existing literature. In a study conducted to understand the challenges of higher education institutions during online education in Turkey, Karademir et al. (2020) reported that all the participants including students, academics, and distance education center managers were significantly concerned about the fairness of the digital assessment and evaluation processes. Similarly, Can (2020) researched the distance education practices in Turkey after the pandemic and pointed out the importance of having reliable and valid assessment processes in distance education. It was stated that establishing digital assessment offices, training academics, and designing valid and reliable assessment should be one of the priorities to be able to have a well-functioning distance education system in universities in Turkey. In another study that was carried out both in Bulgaria and Turkey to understand instructors' perspectives on cheating in e-assessment, the researchers revealed that almost all the participants were highly concerned about an increase in cheating behavior due to the greater use of digital assessment as well as the lack of deterrent intuitional approaches to address cheating and plagiarism (Mellar et al., 2018). This was also the case in Jordan, which was revealed in the study done by Sa'di et al. (2021). The study showed that despite the costly technologies used to prevent cheating and plagiarism, these ethical issues were considered unpreventable for most academics, as they did not have the necessary ethical readiness because of the sudden move to digital assessment. In addition to the issues of academic integrity, the confusion about the implementation of digital assessment and the lack of clarity in addressing the issues of cheating and plagiarism were challenging for instructors. Can (2020) stated that even in the postgraduate studies, there were uncertainties regarding digital assessment and evaluation for instructors, which showed the need for better policies and decision-making processes by higher education institutions. Ghanbari and Nowroozi (2021) also mentioned that at the beginning of the shift to online learning and assessment, there were no clarity or guideline to follow, which led instructors to question the weightings and reliability of exams. As is seen by the existing literature, ethical and administrative issues are one of the most pressing

problems in digital assessment, affecting the attitudes and practices of all stakeholders involved in the assessment process. Therefore, it is critical that training provided to English instructors should not be limited to the digital assessment tools and their uses but be a reflection of the realities experienced by the instructors in their everyday practices and address these compelling issues (Tian et al., 2021).

The second subtheme regarding the perceived needs of English instructors working at foundation universities in Istanbul was the training in digital assessment tools and strategies. The current study demonstrated that despite considering themselves competent in digital assessment, the participating instructors still reported a need for training to be able to learn more about digital assessment tools and strategies. It is clear that the forced and abrupt shift to digital assessment brought the need for the skill and knowledge to be able to choose and use suitable synchronous and asynchronous assessment tools (Akimov & Malin, 2020). Although instructional technologies have been used in universities to support instruction for many years, the extensive use of digital assessment tools was not prevalent before the pandemic (Timmis et al., 2015). The existing literature is also parallel with the finding of this thesis study. Karademir et al. (2020) demonstrated that Turkish university instructors were provided with certain training right after the transition to online teaching and assessment; however, the training was mostly technical and ignored the pedagogical aspect of the practices of online teaching and assessment. In the same vein, Sa'di et al. (2021) found that instructors in Jordan had training for online teaching and Moodle, yet the training also ignored formative assessment strategies and tools as well as connecting assessment to the course outcomes. Ghanbari and Nowroozi (2021) also pointed out that instructors in Iran lacked the necessary knowledge of digital assessment tools and did not get any training specific to digital assessment. As the literature and the current study show, English instructors need further training in digital assessment tools and strategies to be able to decide on the appropriate digital assessment strategies and use the required tools.

Finally, both quantitative and qualitative data revealed that English instructors who work at foundation universities in Istanbul did not find themselves very competent in terms of analyzing and interpreting digital data and needed training on the subject to better support the learning and teaching processes. Gan and Lam (2020) conducted a study aiming to understand university English instructors' assessment training needs in the Chinese context and showed that it was essential to have the knowledge to analyze assessment data and interpret assessment results so that

both teaching and learning could be fostered. In Ölmezer-Öztürk's (2018) study in the Turkish context, English instructors also pointed out that being able to analyze the validity and reliability of exams and interpret results was one of the trainings they needed. As noted by Popham (2009), teachers should be able to analyze the reliability of their assessment tools as well as interpret results and make inferences to increase their assessment literacy levels. As it is an integral part of overall assessment literacy, English instructors should be trained to both analyze their digital tools' reliability and interpret digital data. Otherwise, assessment results could not be trusted fully, and assessment would not go beyond ranking or placing learners.

In short, the findings of the current study suggested that although almost all participants considered themselves knowledgeable and competent in digital assessment, they perceived that they needed further training in certain areas including administrative issues, digital tools and strategies along with analyzing and interpreting digital data.

5.2 Pedagogical Implications

This thesis study presents some pedagogical implications that could be addressed by administrators and instructors working at the tertiary level who might be interested in digital assessment literacy levels of English instructors and their perceptions regarding the needs in digital assessment. As mentioned before, there is a limited number of studies focusing on the area of digital assessment literacy in the world, and in the Turkish context, there is no study that specifically examined English instructors' digital assessment literacy levels and their perceived needs in digital assessment to the knowledge of the researcher. To fill the gap in the literature, the current study was carried out to understand what was happening in terms of digital assessment at the tertiary level in Turkey by looking into English instructors' digital assessment literacy as well as their perceived needs. The findings discussed in the study may have potential implications for a better understanding of the practice of digital assessment and digital assessment literacy and shed light on how to address English instructors' needs in digital assessment.

To begin with, the findings revealed that English instructors who work at foundation universities in Istanbul, Turkey had a high level of digital assessment literacy and found themselves mostly competent in this area. However, there are still some areas in digital assessment

that should be addressed in training sessions for better practice and for staying updated on digital assessment strategies and tools.

The current study also showed that years of experience or being a testing member did not have an impact on the English instructors' digital assessment literacy levels. It is possible to infer that the practice of digital assessment was somewhat new for everyone who was involved in assessing learners digitally, especially after the pandemic; thus, most demographic features did not seem to affect instructors' digital assessment knowledge. The variables that seemed to have an effect on the digital assessment knowledge of the participating instructors were educational background and attending training in digital assessment, which is a good indicator of the need for further training focusing on digital assessment. It was an unexpected, abrupt shift to digital assessment for most higher education institutions at the beginning; however, now, courses regarding digital assessment could be added to graduate programs in education, and testing offices that focus on digital assessment practices might be established to support and train other stakeholders involved in the process at universities. As most higher education institutions have distance education centers, they could establish distance assessment offices to support academics and create an active collaboration among various stakeholders with different expertise areas.

The data collected to determine the English instructors' perceived needs in digital assessment showed that despite feeling competent in digital assessment, the participating instructors still need further training in three main areas, which are administrative issues, digital assessment tools and strategies as well as analyzing and interpreting digital data. Both the quantitative and qualitative data revealed that ethical issues are the most urgent matters that need to be addressed by higher education institutions, which affect the reliability of digital assessment as well as the attitudes of all stakeholders involved in digital assessment processes. The ethical readiness of both instructors and learners must be ensured to have well-functioning and reliable digital assessment. To be able to do that, higher education institutions should have clear guidelines on how to deal with ethical misconduct such as cheating and plagiarism without leaving any room for ambiguity. Instructors working at universities should also be included in the decision-making process since they are practitioners of these guidelines. In addition, they must be well informed about the rules and regulations that are in effect and the reasons behind them to avoid and manage ethical issues. Learners at universities should also have ethical readiness and be informed about the consequences of any potential misconduct. It is highly recommended that universities should invest more in

digital assessment tools along with the tools that could prevent cheating and plagiarism in the digital environment.

Finally, higher education institutions should perform thorough needs analysis for a better practice of digital assessment and create a digital assessment competency guideline for instructors in accordance with the needs in that specific context. With such a guideline, universities could better identify knowledge gaps and address those with to-the-point training sessions. English instructors working at foundation universities should be trained on digital assessment tools; however, providing the technical tools and knowledge cannot guarantee reliable and valid digital assessment. It should not be forgotten that without the necessary knowledge on how to connect curriculum outcomes to the specific digital assessment practices, instructors cannot effectively determine what learners can or cannot do and where the learning gaps are, which should be one of the key roles of assessment to support learning and teaching. Therefore, training that is provided to English instructors should include both technical and pedagogical knowledge. Moreover, to make use of digital assessment in an effective way, instructors should be able to interpret and analyze digital data to make inferences about learners' progress and make changes in instruction if necessary. Thus, it is recommended that institutions should train English instructors to have basic digital data literacy and to exploit the data to create a positive impact on learning and teaching. With some basic knowledge of analyzing data, instructors could determine the reliability of the digital assessment tools and strategies they use and follow their learners' progress better instead of focusing on and making inferences from raw scores.

To sum up, the findings of the current study are significantly valuable to better understand English instructors' digital assessment literacy as well as their perceived needs in digital assessment in the Turkish context. Although the findings revealed that the participating instructors had a high level of digital assessment literacy, it was also revealed that there are still many things to improve digital assessment practices and maximize the benefits of digital assessment at foundation universities in Turkey.

5.3 Conclusion

The present study significantly contributes to the literature by exploring English instructors' digital assessment literacy levels and the effect of certain demographic features on the instructors'

digital assessment knowledge. The study also aimed to investigate English instructors' perceptions regarding their needs in digital assessment.

The findings of the quantitative data showed that the overall digital assessment literacy levels of the English instructors working at foundation universities in Istanbul, Turkey were high. When the difference in instructors' digital assessment literacy was examined based on some of their demographic features, it was seen that having a graduate degree and attending training in digital assessment had a positive impact on the participants' digital assessment knowledge. It was found that years of teaching experience and being a testing member did not have a statistically significant effect on the participants' digital assessment literacy. In addition, the qualitative data collected through semi-structured interviews showed that despite considering themselves competent in digital assessment, English instructors at foundation universities still needed more institutional support, the alignment of digital assessment with curriculum outcomes, and further training in digital assessment. Most of the participating instructors mentioned the challenges brought by the use of digital assessment and stated that they needed both technical and financial support from their institutions. It was also revealed that the institutions had to update their construct definitions, especially in formal assessment in digital assessment, which raised concerns over the negative impacts of these assessment strategies. The participating instructors stated that digital assessment strategies should reflect the priorities of the curriculum and course outcomes to better support learning and instruction. Finally, it was found that the English instructors working at foundation universities in Istanbul needed further training in digital assessment focusing on administrative issues, digital assessment tools and strategies as well as analyzing and interpreting data.

All in all, the findings of the current study demonstrated that English instructors who work at foundation universities in Istanbul were knowledgeable about digital assessment. The study also revealed that demographic features such as years of experience and being a testing member did not have a statistically significant effect on digital assessment literacy. The variables affecting the level of digital assessment literacy were found to be having a graduate degree and attending training in digital assessment, which indicates the need for further training in digital assessment for English instructors.

5.4 Recommendations for Further Research

The current study provides several recommendations for further research. To begin with, the current study could be replicated by using a larger sample size to have a broader understanding of the subject matter. The sample of the study was limited to English instructors who work at foundation universities in Istanbul, Turkey. More research that includes both state and foundation universities could be carried out to present a more general picture. In addition, an online survey and semi-structured interviews were utilized to gather the data in the present study. To have more reliable data, more data collection tools could be added to further research such as classroom observations or teacher journals to grasp a deeper understanding of English instructors' digital assessment knowledge and practices. Future research might also investigate the digital assessment use of English instructors in formal and informal assessment and explore how their knowledge is reflected in their daily practices. Finally, this study was restricted to English instructors' digital assessment literacy and their perceived needs in digital assessment. However, to have an in-depth understanding of digital assessment at the tertiary level, the study could be repeated with other academics in different departments and the results might be compared. Also, it is highly recommended that future studies include more stakeholders involved in digital assessment to be able to examine it from different perspectives.

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