A REVIEW OF RESEARCH ON E-ASSESSMENT IN TURKEY: A CONTENT ANALYSIS

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ABSTRACT

In this research, articles, doctoral dissertations and master's theses published so far on E-Assessment (Electronic Evaluation), Web-Based Evaluation, Online Evaluation, E-Exam, which have gained importance within the scope of Emergency Distance Education in Turkey, were searched. In the light of the studies carried out to date, it is aimed to determine the research trends in e-assessment in Turkey. With this main purpose, 4 doctorate, 12 master's and 13 articles related to e-assessment, which is an important sub-title of Distance Education, were examined in terms of years, university, applied educational institution, research designs, research design types, creation of measurement tools. Since it is a current topic, no year limit has been made and all studies on this subject that include one or more of the above-listed E- Assessment, Web-Based Assessment, Online Assessment, E-Exam concepts have been tried to be included in the research. The content analysis method was used in the analysis of the data by making document analysis with the descriptive approach of the studies found. The findings obtained from the research were discussed in line with the literature and suggestions were made for future studies. It is thought that the results obtained will contribute to determining the future trends in future research on e-assessment.

Keywords: E-Assessment, Web Based Assessment, E-Exam, Online Assessment, Research Trends, Content Analysis.

Introduction

The disease, which the World Health Organization (WHO) called Covid-19 caused by the corona virus on February 11, was first encountered in Wuhan, China in December 2019 (BBC News- Turkish, 2020) and after spreading all over the world, It was declared a "pandemic", meaning a global epidemic, by the World Health Organization in March 2020 ("COVID-19 pandemic", 2020).

Due to the epidemic, the operation and flow has been turned upside down all over the world. There was an opportunity to question the norms and practices that have been used for a long time (Zhao, 2020). Education systems have also had their share from the pandemic, and face-to-face education has come to a standstill all over the world due to the closure. 92% of students in the world have been affected by this closure (Can, 2020). Apart from the concept of distance education, which was used before, the concept of emergency remote education has also entered our agenda due to the conditions of the day. Due to the pandemic, within the scope of emergency distance education, open and distance education opportunities have been started to be used for all students, covering all education levels worldwide (Bozkurt, 2020). The distance education method, which has been used for a long time, has been adapted to education systems, and the emergency distance education model has been adopted all over the world. The long duration of the pandemic has also affected the academic calendars applied in education.

As a result of the education, decisions are made on issues such as selection and placement, guidance and orientation, teaching, and the success of the students. Making the right decisions depends on reliable and valid measurement and evaluation in education (Alıcı, et al., 2011). Due to the closure of schools and the need to suspend face-to-face education, many measurement methods in use have been disabled. Online measurement and flexible evaluation methods, which are not used under normal conditions, have been started to be used in order to prevent the unjust treatment of students during the pandemic process. Although these methods are considered acceptable within tolerance due to the conditions brought by the process, primarily disturbed the educators by staying away from a fair evaluation in terms of measuring academic achievements, and according to the findings emphasized in the reports, students and parents were also disturbed in this regard. This emerging problem can be considered as an opportunity to bring new approaches in measurement and evaluation methods and to adapt and use them in the education system (Sarı & Nayır, 2020)

Today, countries with strong economic and social life gain all their gains from caring about education and restructuring their educational institutions in accordance with the conditions of the day. (Şentürk, 2008) Therefore, it is obvious that the creation and implementation of an effective e-measurement and evaluation system will contribute greatly to the development of both individuals and our country. As a result of our research on this subject, it has been understood that although there are studies on e-assessment, there are not enough

numbers.

Aim of the Study
The aim of this research is to analyze the doctoral theses, master's theses and article studies on e-assessment made in Turkey, without any year restriction, by using the content analysis method. For this purpose, answers were sought to the following questions. In this study, 4 doctoral theses, 12 master's theses and 13 articles related to e-assessment;
   1. How is it distributed over the years?
   2. How is it distributed by university?
   3. How is it distributed according to the educational institution applied?
   4. Which research design was used?
   5. What are the types of research designs used?
   6. How is the distribution according to the measurement tool used?

Methodology
In this study, the descriptive research method, which was determined to be suitable for the purpose of the study, was adopted. Descriptive research is expressed as interpretation by bringing together the data that are close to each other, which is frequently used in qualitative research, in the category of certain concepts and topics, and by arranging these data in a way that readers can understand (Yıldırım & Şimşek, 2016). In this study, descriptive content analysis method was used. Doctoral theses, master's theses and articles found in the study were analyzed and explained in terms of various variables.

The Scope of the Study

In this study, it is aimed to determine research trends under the title of e-assessment by reviewing articles, doctorate or master's theses, which include one or more of the concepts of E- Assessment, Web-Based Assessment, Online Assessment, E-Exam as keywords regardless of the year criteria. For this purpose, a total of 29 studies, including 13 articles, 4 doctoral theses and 12 master's theses, were included in the research.

Data Collection Tool
In the study, a thesis review form was created to systematically examine the studies found. An examination was made under the headings to determine the research trends.

Data Analysis
In the study, content analysis technique was used in the evaluation of the obtained data. Studies found under the title of e-assessment using related concepts were downloaded electronically and analyzed in six basic categories that we determined beforehand. The goal in content analysis is to examine the collected data in more detail and to reach the themes and concepts that can explain this data (Yıldırım & Şimşek, 2016).

Studies made on the basis of concepts that are close to each other or have the same meaning within the scope of e-assessment were questioned in electronic sources and a copy of the relevant ones was taken. In this context, the data related to the variables of the year, university, educational institution applied, research designs, types of research designs, and the creation of measurement tools of the theses examined were analyzed descriptively. The frequencies of the data obtained in response to the answers to each research question regarding the recorded data in the created database and the percentages depending on the frequency were found. The numerical data obtained were converted into tables and presented in tables.

Screening Criteria
Within the framework of the study, it has been previously published in the electronic environment at the website tez.yok.gov.tr belonging to the National Thesis Center of the Higher Education Council Publication and Documentation Department, at *scholar.google.com* belonging to Google Scholar and at *dergipark.org.tr* belonging to Dergi Park Academy. A search was made based on the words E-Assessment (Electronic Evaluation), Web-Based Evaluation, E-Exam, Online Evaluation. With these criteria, a total of 29 studies, including 13 articles, 12 master's theses, 4 doctoral theses, were found and examined in terms of "year, university, applied educational institution, research designs, research design types, measurement tools".

Findings
As a result of the research, the studies related to e-assessment, the analyzes made in terms of different variables and the findings are included. Under the headings of year, university, educational institution applied, research designs, types of research designs, creation of measurement tools, the findings were tabulated in order as frequency and percentage results of the theses, and table interpretations were made.

Table 1. Distribution of the Studies Found by Years

Years	Frequency (f)	Percentage (%)
2021	1	3,45
2020	3	10,34
2019	2	6,90
2018	4	13,79
2017	2	6,90
2016	2	6,90
2015	0	0,00
2014	4	13,79
2013	2	6,90
2012	2	6,90
2011	0	0,00
2010	1	3,45
2009	2	6,90
2008	1	3,45
2007	1	3,45
2006	1	3,45
2005	0	0,00
2004	1	3,45
	29	100

When the distribution of studies on e-assessment by years is analyzed in Table 1, 4 (13.79%) in 2018 and 2014, 3 (10.34%) in 2020, 2 in 2019-2017-2016-2013-2012-2009. (6.90%), 1 (3.14%) in 2021-2010-2008-2007-2006-2004, 0 (0.0%) in 2015-2011-2005. Studies on the subject, which did not exceed the number 1 before 2012, except for 2009, increased after 2012, except for 2015. Considering that 2021 has not been completed and the pandemic process continues, there is a possibility that there will be an increase in e- assessment this year. In the study, no study was found that complies with the criteria of pre-2004.

Table 2. Distribution of the Studies Found by Universities

University Name	Frequency (f)	Percentage (%)
Ataturk University	2	5,56
Bahcesehir University	1	2,78
Bartin University	1	2,78
Baskent University	1	2,78
Beykent University	2	5,56
Bilecik Sheikh Edebali University	1	2,78
Dicle University	1	2,78
Erzincan University	1	2,78
Eskisehir Osmangazi University	3	8,33
Fatih University	1	2,78
Firat University	1	2,78
Gazi University	3	8,33
Gaziosmanpasa University	1	2,78
Hacettepe University	1	2,78
Haci Bayram Veli University	1	2,78
Istanbul University	1	2,78
Land Forces NCO Vocational School	1	2,78
Necmettin Erbakan University	1	2,78
Nevşehir Halil İncekara Science and Art Center	1	2,78
Middle East Technical University	1	2,78
Pamukkale University	2	5,56
Sakarya University	2	5,56
Selcuk University	2	5,56
Sofia University	2	5,56
Universitat Oberta De Catalunya	2	5,56
	36	100

When Table 2 is examined, it is seen that Eskişehir Osmangazi University and Gazi University have 3 (8.33%) each, Atatürk University, Beykent University, Pamukkale University, Sakarya University, Selçuk University, Universitat Oberta De Catalunya and Sofia University 2 each (5.56%) were found to have researches.

Bahçeşehir University, Bartın University, Başkent University, Bilecik Şeyh Edebali University, Dicle University, Erzincan University, Fatih University, Fırat University, Gaziosmanpaşa University, Hacettepe University, Hacı Bayram Veli University, Istanbul University, Land Forces Petty Officer Vocational School, Necmettin Erbakan University, Nevşehir Halil İncekara Science and Art Center and Middle East Technical University have 1 (2.78%) studies. The most studied universities are Eskişehir Osmangazi University and Gazi University. It was determined that there was joint participation in the studies from 2 foreign universities, Sofia University and Universitat Oberta De Catalunya. One study was carried out from the Land Forces NCO

Vocational School. In addition, it is seen that there is a study on e-assessment in Nevşehir Halil İncekara Science and Art Center.

Table 3. Distribution of the Studies Found by Educational Institution

Research Group	Frequency (f)	Percentage (%)
Undergraduate	14	41,18
No Research Group	5	14,71
Teacher	3	8,82
Master Degree	2	5,88
Instructor	2	5,88
Middle School	2	5,88
Associate Degree	2	5,88
Primary school	1	2,94
Senior Manager	1	2,94
Field Specialist	1	2,94
Continuing Education Center Students	1	2,94
	34	100,00

When the table 3 regarding the distribution of study groups by educational institution in the studies discussed is examined, 14 (41.18%) undergraduate students were seen as the most preferred study group, while no study group was used in 5 (14.71%) studies. There were 3 (8.82%) studies for teachers. There were 2 studies (5.88%) for postgraduate, lecturer, associate degree, secondary school students, and 1 (2.94%) study for primary school, senior administrators, field specialists, and continuing education center students.

Table 4. Distribution of the Studies Found by Research Designs

Methodology	Frequency (f)	Percentage (%)
Quantitative	9	31,03
Qualitative	6	20,69
Mixed	9	31,03
Application Development	5	17,24
Total	29	100

When the table 4 regarding the distribution of study groups according to research designs in the studies discussed is examined, quantitative research is 9 (31.03%), qualitative research is 6 (20.69%), mixed research is 9 (31.03%). In 5 (17.24%) studies, application development was made, but user opinions about it were not investigated. It is seen that mostly mixed studies and quantitative researches are done.

Table 5. Distribution of the Studies Found by Research Designs

Method Description		Frequency (f)	Percentage (%)
Quantitative Experimental	Fully Experimental	1	3,45
Quantitative Non-experimental	Descriptive	3	10,34
	Comparative	2	6,90
	Scanning	3	10,34
Qualitative	Interactive research→ Phenomenological pattern	2	6,90
	Interactive research→Situation analysis	4	3,79
Mixed Research	Qualitative and Quantitative	10	34,48
Research for Design		4	13,79
Total		29	100

When the table 5 regarding the explanation distribution of the research designs of the studies found is examined, it is seen that in quantitative experimental designs fully experimental 1 (3.45%), quantitative non-experimental descriptive 3 (10.34%), comparative 2 (6.90%), survey 3 (10%). ,34), qualitative studies with phenomenological design 2 (6.90%), situation analysis 4 (13.79%). While 10 (34.48%) mixed research designs were found in the related studies, 4 (13.79%) design-based studies were found.

Table 6. Distribution of the Studies Found According to the Preparation of the Measurement Tool

Measuring tool	Frequency (f)	Percentage (%)
Measurement Tool Developed by the Researcher	15	65,22
Measurement Tool Developed by Someone Else	6	26,09
Mixed Measurement Tool	2	8,70
Total	23	100

When the table 6 regarding the Distribution of the Measurement Tool According to the Preparation of the Studies found is examined, it is seen that the measurement tool developed by the researcher is 15 (65.22%), the measurement tool developed by someone else is 6 (26.09%), and the measurement tool prepared as mixed is 2 (%8,70).

Discussion, Conclusion and Recommendations
A total of 29 studies including one of the concepts of E-Assessment, Web-Based Evaluation, Online Evaluation and E-Exam were reached in the study, which was carried out without any date limitation. Of these studies, 13 are articles, 12 are master's thesis, and 4 are doctoral dissertations. Considering the distribution of studies in Table 1 by years, no study related to e-assessment was found before 2004. Although the number of studies has increased since 2012, in some of the years after 2012, no studies were found or only 1 was found. It is seen that the most studies were in 2018 and 2014 with 4 studies per year. When we look at 2021, we see that there is 1 study. It is obvious that the year is not over, in case this is misunderstood, and the emergency distance education process, as well as the e-assessment process, which is a part of this process, has not been completed because the pandemic has not come to an end. Even if the pandemic is over in the next period, it is expected that the speed in distance education studies will continue to increase.

It is seen that the universities with the most studies on e-assessment are Gazi University and Eskişehir Osmangazi University with 3 studies each.

As the educational institutions where the examined studies are applied, a listing can be made as undergraduate, graduate, associate degree and continuing education center students and lecturers, primary and secondary school students and teachers, as well as senior administrators and field specialist personnel. It has been determined that the examined studies are mostly aimed at undergraduate students in universities as the institution in which they

are applied. In this context, it is noteworthy that there are 14 studies. In addition, within the scope of design-oriented research on e-assessment, it was determined that 5 studies aimed at making applications did not conduct a qualitative or quantitative research.

When the distribution of the studies in Table 4 according to the research designs is examined, it can be said that the quantitative research and mixed research design used in 9 studies are the most preferred methods.

When the research designs are examined, the mixed research method draws attention with 34.48%. It is seen that the non-experimental sub-titles of quantitative research are more adopted. In the explanation distribution of the research designs, it was found that the interactive research case analysis, which is one of the qualitative studies, is twice as much as the phenomenology. In quantitative research, it is seen that full experimental research is done.

When the preparation of the measurement tools of the 29 studies is examined, it is seen that the measurement tools developed by the researcher were used in fifteen of the studies. This draws attention with 65.22% compared to the total study.

With this research, the article made within the scope of Turkey under the title of e-assessment, which has a very important place in emergency distance education applications due to the pandemic, provides an overview of the changes experienced in recent years in doctoral thesis and master's thesis research. It will also contribute to future research trends.

For further research on e-assessment, studies that include the studied subject areas and that can be prepared under headings by categorizing the conclusion sections can be suggested. By detailing the advantageous and deficient aspects of e-assessment, by making it the subject of research, the distance education and e-assessment studies that will continue to be in our lives can be increasingly continued in order to place them on a healthier and more solid ground.

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