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Current trends in education technologies research worldwide: Meta-analysis of studies between 2015 and 2020

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Abstract

The interaction between education and technology affects the developments occurring in two areas and the developments in education increase the speed of technological developments. Educational technology is the functionalisation of the scientific knowledge produced in educational sciences and its application in practice. In this research, the content analysis of the studies conducted in Turkey and abroad in the last 5 years, in order to determine the current trends in educational technology researches, is presented. Within the scope of the purposive sample, the studies published in 2015–2020 in the field of educational technology researches, included in the databases and journals, were examined and interpretations were made. A total of 15 research criteria were determined within the context of content analysis. These criteria are index, country, university, department, year of publication, number of authors, research area, method, educational level, sample group, sample number, data collection method, number of bibliography, analysis techniques and research trends. SPSS 24 program was used in the analysis of the data and the obtained data are presented in the related tables. The data were interpreted based on percentage and frequency. After making general explanations below the tables, the similarities and differences seen in the studies were analysed in detail by using the meta-analysis method. As a result, it was revealed that the most emphasised issue within the scope of the research area was the adequacy of using educational technologies.

Keywords: Educational technology research, current trends, meta-analysis.

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1. Introduction

Considering that the present age is the age of technology, the most important role in fulfilling the requirements of this age is undoubtedly based on the educational principles of respective countries. When the educational visions of developed and developing countries are examined, it is seen that they benefit from technology efficiently in educational activities. Based on the definition of Alkan (1997), educational technologies transform science activities produced within the scope of educational sciences into usable products and transfer them to practice. Due to the increase in the use of technology in education, many countries have developed and implemented various programmes in order to increase the use of educational technology (Akpinar, 2003).

Depending on the development of information technologies, technological equipment used in education continues to develop and renew. Many countries have established standards, performance and competence indicators for the effective use of technology in education. Many countries, including the United States, Australia, the UK, China, Ireland and Latin America, have begun using National Educational Technology Standards (NETS), the project of the International Society for Technology in Education (ISTE), in their education system (Stuve & Cassady, 2005).

It is important that the concept of technology is perceived correctly, especially by young researchers. In this regard, it is essential to understand how educational technology researches are conducted and what kind of results they produce. The most valid way for this is to examine in detail the current trends in educational technologies research (Simsek et al., 2008). At the commencement of these researches, the questioning of the studies which are included in databases and journal indexes within the scope of educational technologies comes first.

When the literature is examined, some studies are found according to certain research criteria. Simsek et al. (2008) studied the master's thesis in the field of educational technology made in Turkey between 2000 and 2007 in research and have received 259 theses under scrutiny in this context. As a result, they found that the majority of the quantitative research was paradigmatic, and that questionnaires, tests and scales were used as data collection tools. However, a striking result of the study is that the results of the study are found to be quite poor in terms of functionality and fertility. In his study, Costa (2007) examined master's theses completed in five universities in the field of educational technologies in Portugal and benefitted from 226 thesis studies in this context. As a result, the thesis subjects are shaped in the context of behavioural, cognitive and constructivist approaches, and the thesis paradigms are based on quantitative, qualitative and mixed approaches. In addition to this, it has been determined that the main focus is on the use of ICT in education and training applications. Moreover, it has been determined that the main focus is on the use of ICT in education and training applications. Alkraiji and Eidaroos (2016) conducted a meta-analysis study that revealed the current trends and problems in Saudi higher education and educational technology research. In this regard, they have discussed 52 studies in detail on types of technology, target groups, socio-technical research contexts, research theories, research paradigm and methodologies. According to the results obtained in this study, most of the studies examined are based on a case study methodology; however, the articles lack theoretical framework.

1.1. Aim of this study

The aim of this research is to reveal the current research trends in the studies conducted in the field of educational technology research by making the classification of publications.

1.2. Importance of this study

As a result of the research carried out worldwide between the years 2015 and 2020, ‘educational technology research’ studies in the field were obtained under the following heading: index, publication year, country, university, department, number of authors, research area, method, education level,

sample group, sample number, data collection method, number of bibliography, analysis techniques and research trends.

2. Method

2.1. Research design

This research is an example of a meta-analysis which is included in the content analysis studies. Meta-analysis is a method that aims to reach common results by using statistical tools in order to synthesise the results of the researches by combining the researches that are being worked on together and also to reduce the limitations of individual studies (Buyukozturk, 2018). In this study, the meta-analysis method was used in order to analyse the studies conducted worldwide in the field of educational technology research with qualitative methods and to determine its tendency.

2.2. Data collection

First, from researches in educational technology, published in 2015–2020, in the research area of Turkey included in the databases and journals scanned, and then from analysed databases and journals published over the years and identified in relation to the topic throughout the world.

2.3. Analysis of data

The data obtained in this study are presented in the subsequent tables. The purpose of this study is to create both visuality and an opportunity to have an idea about the research conducted at first glance. The data were interpreted based on percentage and frequency. After making general explanations below the tables, the similarities and differences seen in the studies were analysed in detail by using the meta-analysis method.

3. Findings

The findings presented on the basis of the publication classification criteria determined in the research are given in Table 1 and related comments.

Table 1. Distribution of studies in the field of educational technology research by publication index

Publication index	*F*	%
Eric	20	19.8
Science direct	14	13.9
YOK thesis screening	13	12.9
IEE xplore	11	10.9
Web of science	6	5.9
Scopus	5	5.0
Egitim teknolojisi kuram ve uygulama	4	4.0
Egitimde nitel arastirmalar	2	2.0
Elemantary education online	2	2.0
Universal journal of educational research	2	1.0
Yuksek ogretim ve bilim	1	1.0
World journal of educational technology	1	1.0
Egitim ve bilim	1	1.0
British journal of educational technology	1	1.0
TOJET	1	1.0
Anadili egitimi dergisi	1	1.0
Eurasian journal of educational research	1	1.0

European journal of educational research	1	1.0
Uluslararasi turk egitim bilimleri dergisi	1	1.0
Uluslararasi sosyal arastirmalar dergisi	1	1.0
Journal of educational science	1	1.0
Bilisim teknolojileri dergisi	1	1.0
Acikogretim uygulama ve arastirmalari	1	1.0
Abant University EFJ	1	1.0
Kastamonu University EFJ	1	1.0
Mersin University EFJ	1	1.0
Baskent University EFJ	1	1.0
Pamukkale University EFJ	1	1.0
Yasar University EFJ	1	1.0
Cypriot journal of educational science	1	1.0
Gazi University EFJ	1	1.0
TOJDE	1	1.0
Total	101	100

When Table 1 is examined, it is found that the studies conducted in the field of educational technology research mostly belong to the 'Eric' database (20 publications and 19.8%). The Education Resources Information Centre (ERIC) database provides unlimited access to more than 1.2 million bibliographic records and articles in the field of education. In this context, a significant amount of full texts is linked. The ERIC collection includes articles, books, conference texts, technical reports and other educational resources. In addition to the Eric database of the publications, the frequencies of Science Direct, YOK Thesis Search, IEE Xplore, Web of Science and Scopus databases are worth noting. In addition, the presence of national and international journals accepting publications within the scope of educational technologies is another remarkable finding in Table 1.

The countries to which the relevant surveys belong are listed in Table 2.

Table 2. Distribution of studies in educational technology research by country

Countries	***F***	**%**
Turkey	50	49.5
USA	18	17.8
Russia	4	4.0
Germany	2	2.0
Australia	2	2.0
China	2	2.0
Indonesia	2	2.0
England	2	2.0
Ireland	2	2.0
TRNC	2	2.0
Austria	1	1.0
Brazil	1	1.0
Finland	1	1.0
South America	1	1.0
South Korea	1	1.0
India	1	1.0
Spain	1	1.0
Swedish	1	1.0
Colombia	1	1.0
Malaysia	1	1.0

Macedonia	1	1.0
Philippines	1	1.0
Ukraine	1	1.0
New Zealand	1	1.0
Greece	1	1.0
Total	101	100

According to Table 2, when the distribution of the studies in the field of educational technologies according to the research countries is examined, the countries with the highest publications (e.g., 'Turkey' with 50 publications and 49.5%) are put forward. Benefitting from browsing the national YOK Thesis Screening and university's journals has transferred these criteria to Turkey's favour. Turkey is followed by the United States in second place. Another remarkable point in Table 2 is the assets of developing countries, such as Indonesia, Macedonia and the Philippines. Another result is the inadequacy of a developed country in the field of education, such as Finland and Korea.

Table 3. Distribution of studies in educational technology research by university

University	***F***	**%**
Anadolu University	5	5.0
Near East University	4	4.0
University of National Education	4	4.0
Gazi University	3	3.0
Inonu University	2	2.0
18 Mart University	2	2.0
Mersin University	2	2.0
Necmettin Erbakan University	2	2.0
Karadeniz Teknik University	2	2.0
Nevsehir University	2	2.0
Omer Halis Demir University	2	2.0
Florida Universtiy	2	2.0
Colorado College of Nursing	2	2.0
South Technology University	2	2.0
Utah State University	2	2.0
Central University	2	2.0
Orta Dogu Teknik University	2	2.0
Hacettepe University	2	2.0
Abant Izzet Baysal University	2	2.0
Adnan Menderes University	2	2.0
Afyon Kocatepe University	1	1.0
Ahi Evran University	1	1.0
Amasya University	1	1.0
Balikesir University	1	1.0
Dokuz Eylul University	1	1.0
Ege University	1	1.0
Duzce University	1	1.0
Ataturk University	1	1.0
Baskent University	1	1.0
Bahcesehir University	1	1.0
Burdur University	1	1.0
Selcuk University	1	1.0
Trakya University	1	1.0
Gumushane University	1	1.0
Sakarya University	1	1.0

Karadeniz Teknik University	1	1.0
Yeditepe University	1	1.0
Mehmet Akif Ersoy University	1	1.0
Bartin University	1	1.0
Helsinki University	1	1.0
Georgia University	1	1.0
Dublin University	1	1.0
Colombia University	1	1.0
Texas University	1	1.0
Deakin University	1	1.0
Washington University	1	1.0
Oldenburg University	1	1.0
Trident University	1	1.0
Tufts University	1	1.0
Beijing University	1	1.0
Pendidikan University	1	1.0
Skopje University	1	1.0
La Trobe University	1	1.0
Johannes University	1	1.0
Estado University	1	1.0
Athlone Institute of Technology	1	1.0
Agatha State University	1	1.0
Study in UK University	1	1.0
Limeric University	1	1.0
San Igna University	1	1.0
Linkoping University	1	1.0
Laboratory University	1	1.0
Sumy State University	1	1.0
Tomsk Polytechnic University	1	1.0
John Carter University	1	1.0
World Nuclear University	1	1.0
Macquarie University	1	1.0
Keele University	1	1.0
University of Moratuwa	1	1.0
University of Idaho	1	1.0
University of Philippines	1	1.0
Open University Milton Keynes	1	1.0
Londra Economy University	1	1.0
Total	101	100

According to Table 3, when the universities that belong to the studies published within the scope of educational technology research are examined, the frequency of a university in Turkey 'Eskisehir Anadolu University' is seen where it belongs. Anadolu University is followed by a university from the TRNC, 'Near East University', and a university from the United States, 'University of National Education'. When the sub-rankings are examined, it can be seen that domestic and international universities vary. The lack of publication in a technically advanced university, such as ODTU, Hacettepe University, in Turkey should be noted.

Table 4. Distribution of studies in the field of educational technology research by department/Institute

Department/Institute	*F*	%
Educational Science	45	45.0
Institute of Technology	17	17.0
Computer Education and Instructional Technology	13	13.0
Social Science Institute	4	4.0
Pedagogy	3	3.0
Foreign Languages	2	2.0
Classroom Teaching	2	2.0
Health Sciences	2	2.0
Institute of Science	2	2.0
Nursing	2	2.0
Management	2	2.0
Law	1	1.0
Communication	1	1.0
Accounting	1	1.0
Engineering	1	1.0
Special education	1	1.0
Economy	1	1.0
Radiological	1	1.0
Total	101	100

When Table 4 is examined, it is found that the majority of the publications in the field of educational technology research is made in the 'Institute of Educational Sciences' as the institute, followed by the 'Department of Computer Education and Instructional Technology' as the department. Another remarkable point in Table 4 is the diversity in departments and institutes.

Table 5. Distribution of studies in educational technology research by publication years

Publication years	*F*	%
2015	22	21.8
2016	27	26.7
2017	21	20.8
2018	15	14.9
2019	14	13.9
2020	2	2.0
Total	101	100

According to Table 5, when the distribution of the studies conducted in the field of educational technology research according to the publication years is examined, the frequency of '2016' is noteworthy, with 27 publications and 26.7%. When the annual distribution is examined, it is found that there is a decrease in the publications in educational technology researches in the literature.

Table 6. Distribution of studies in the field of educational technology research by author number

Author number	*F*	%
1 author	40	39.6
2 authors	37	36.6
3 authors	13	12.9
4 authors	7	6.9
5 authors	3	3.0
6 and more authors	1	1.0
Total	101	100

When the number of authors of the studies conducted in the field of educational technology researches is examined, according to Table 6, it is found that the frequency is in 'single-author studies'.

Table 7. Distribution of studies in educational technology research area by research area

Research area	*F*	%
Current trends in ET research	11	10.9
ET Usage competencies	7	6.9
ET standards	7	6.9
Teacher views on ET	6	7.9
Teacher candidates' views on ET	5	6.0
Use of ET in healthcare	4	4.0
Use of ET in science and technology	3	3.0
Use of ET in foreign language education	3	3.0
ET in higher education	3	3.0
Future uses of ET	3	3.0
ET use anxiety	2	2.0
ET use barriers	2	2.0
Use of ET in special education	2	2.0
ET attitudes of classroom teachers	2	2.0
ET in mathematics education	2	2.0
School administrators' ability to use ET	2	2.0
Attitudes of I.T. teachers towards ET	2	2.0
ET in the digital world	2	2.0
ET overview	1	1.0
Material development in ET	1	1.0
Perceptions of prospective teachers for ET	1	1.0
Use of new technologies in ET	1	1.0
New theories in ET	1	1.0
Sustainability of use in ET	1	1.0
Multi-touch technologies in ET	1	1.0
ET and social skills-decision-making	1	1.0
E.T's yesterday and today	1	1.0
ET inferences	1	1.0
Technology transfer problems in ET	1	1.0
ET academician perceptions	1	1.0
ET and student motivation	1	1.0
Sustainability at ET	1	1.0
Promising ET applications	1	1.0
Student views on ET	1	1.0
ET and human computer interaction	1	1.0
ET use levels of public employees	1	1.0
Modern ET applications	1	1.0
ET in engineering applications	1	1.0
ET and learning analytics	1	1.0
Use of ET in vocational education	1	1.0
Gifted students and use of ET	1	1.0
Use of ET in distance education	1	1.0
Effective use of ET in Turkish education system	1	1.0
Common ET	1	1.0
ET and teacher autonomy	1	1.0

ET and economic growth	1	1.0
Use of ET in vocational and technical schools	1	1.0
A mixed research on ET	1	1.0
ET use of English instructors	1	1.0
Total	101	100

According to Table 7, when the distribution of the studies conducted in the field of research area is examined according to the research field, it is seen that it is a very diverse structure and it is also found that the density in this diversity is 'Current Trends in ET Research', with 11 publications and 10.9%. The rapid developments and changes in the information and communication technologies which are renewed day by day affect the educational technology research directly, and researchers tend to examine the new technologies, applications and theories put forward in this field. It is assumed that this result can be explained in this context. Other rankings are followed by the same percentage of ET qualifications and ET standards. Within the scope of ET use and competencies, researches were conducted on different sample groups, such as teachers, academicians, prospective teachers, students and public employees. As for ET standards, studies were carried out for ISTE and NETS. Table 7 shows that other research areas also vary.

Table 8. Distribution of studies in the field of educational technology research according to methods

Methods	***F***	**%**
General screening	30	29.7
Report	15	14.9
Meta-analysis	15	14.9
Case study	9	8.9
Qualitative research	7	6.9
Experimental research	6	5.9
Mixed method	5	5.0
Scale development	4	4.0
Research methodology	2	2.0
Phenomenology	2	2.0
Relational screening	2	2.0
Compilation	2	2.0
Instructional design	1	1.0
Review of book	1	1.0
Total	101	100

When Table 8 is examined, it is found that the distribution of the studies conducted in the field of educational technology researches according to the methods is often the 'general screening method'. In this context, it has been determined that the studies conducted in the related field are mostly on quantitative researches.

The diversity of other research methods is remarkable. Both qualitative and quantitative research methods are often preferred. General screening is a method used to make a general judgement about the universe (Karasar, 2005).

Table 9. Distribution of studies in educational technology research area by educational levels

Education levels	***F***	**%**
University	53	66.2
Pre-school	13	17.3
Middle-school	6	7.5
High-School	3	3.7

Pre-middle school	3	3.7
Pre-middle-high school	2	1.6
Total	80	100

When the educational levels of the studies conducted in the field of educational technology researches were examined in Table 9, it was found that the density was in 'university'. Since 21 researches were in the nature of articles, a total of 80 education levels were identified in this study.

Table 10. Distribution of studies in the field of educational technology research by sample group

Sample group	***F***	**%**
Students of university	15	14.9
Teacher candidates	13	14.6
Article and thesis	8	7.2
Lecturers	7	7.1
Classroom teachers	6	6.9
Primary school branch teachers	6	6.9
High school branch teachers	4	4.2
Primary school students	4	4.2
Middle school students	3	3.4
Projects (TUBITAK, BAP, etc.)	3	3.4
School manager and administrators	3	3.4
Vocational high school students	2	2.6
Special education students	2	2.6
Public employees	2	2.6
User data	1	0.8
SSCI-SCI-ESCI articles	1	0.8
Total	80	100

When Table 10 is examined, it is found that the sample groups of the studies on educational technology research vary. When the frequency and percentage are examined, it is found that the density is on the sample of 'university students'. University students are followed by 'teacher candidates'. The fact that the majority of the studies in the related field were conducted by the faculties of education and educational sciences supports this result. Projects, articles and theses, user data, included in the meta-analysis studies, in Table 10 are other remarkable situations.

Table 11. Distribution of studies in the field of educational technology research by sample number

Sample number	***F***	**%**
1–29	22	29.7
30–59	7	11.4
60–89	10	12.5
90–119	9	8.8
120–159	3	3.7
160–200	3	3.7
200 and more	26	30.2
Total	80	100

According to Table 11, when the sample numbers of the studies conducted in the field of educational technology researches are examined, it is found that the density is '200 and above'. This result obtained from the study can be explained by conducting the related studies with the general screening model, one of the quantitative research methods.

Table 12. Distribution of studies in educational technology research area according to data collection tools

Data collection tools	*F*	%
Survey	18	17.8
Scale	18	17.8
Interview	14	13.9
Observation-interview-document analysis	6	5.9
Video recordings	5	5.0
Scale–survey	4	4.0
Meta-analysis criteria	3	3.0
Observation	2	2.0
Survey–interview	2	2.0
Scale–interview form	2	2.0
Observation–interview	2	2.0
Performance indicators	2	2.0
Document analysis	1	1.0
Interview–survey	1	1.0
Total	80	100

According to Table 12, when the data collection tools of the studies conducted in the field of educational technology research are examined, it is found that the density is in the 'questionnaire and scale' measurement tools with the same percentage. In addition to these measurement tools, data collection tools used in both qualitative and quantitative research methods (observation, interview, document analysis, performance indicators, etc.) are another result of the study.

Table 13. Distribution of studies in educational technology research area by number of bibliography

Number of bibliography	*F*	%
1–25	8	7.9
26–50	50	49.5
51–100	35	34.7
100 and more	8	7.9
Total	101	100

When the number of bibliographies of the studies conducted in the field of educational technology research is examined in Table 13, it is determined that the density is in the range of '26–50' numbers.

Table 14. Distribution of studies in educational technology research area according to analysis techniques

Analysis techniques	F	%
T test	19	18.4
Content analysis	17	16.4
Descriptive analysis	12	11.4
ANOVA	11	10.4
Systematic analysis	6	5.4
Ki kare test	5	4.4
Exploratory factor analysis, Confirmatory factor analysis	4	3.4
Tukey's HSD test	3	3.4
Order mean, frequency, percentage	3	3.4
Mann–Whitney U test	3	3.4
Kruskal–Wallis test	3	3.4
MANOVA test	2	2.4

Correlation analyse	2	2.4
Regression analysis	2	2.4
Spearman Brown rank	1	1.4
Pearson's correlation	1	1.4
Metaphor	1	1.4
Bonferroni's test	1	1.4
In-depth analysis	1	1.4
Total	97	100

According to Table 14, when the distribution of the studies conducted in the field of Educational Technologies according to the analysis techniques is examined, it is found that the density is the highest for '*t*-test'. The relevant test is used to test whether there is a statistically significant difference between the numerical (continuous) variables (or groups), or to determine whether the observed average value is different from the assumed or predicted (or previous research) value (Buyukozturk, 2018). The frequency of use of the *t*-test can be explained by the preference of the quantitative research methods, rather than research methods. In the research, *t*-test is followed by 'content analysis' used in qualitative research methods. In addition, the diversity of the data analysis used is another remarkable point in Table 14.

Table 15. Distribution of studies in educational technology research area according to research trends

Research trends	***F***	**%**
Current trends in ET research	13	13.1
ET and teacher views	8	8.0
ET and students views	7	7.0
ET-ISTE, NCER, NCSER and NETS standards	7	7.0
Technology attitudes towards ET	7	5.0
ET vision and usage skills	5	4.0
Use of ET in health sciences	4	4.0
ET applications in distance education	3	3.0
Effective use of ET	3	3.0
ET and barrier	3	3.0
ET and sustainability	3	3.0
ET perspective and paradigms	3	3.0
Academic perception of ET	2	2.0
ET and learning outcomes	2	2.0
Foreign language teaching with ET	2	2.0
ET and international perspectives	1	1.0
ET and legal requirements	1	1.0
ET and technological infrastructure	1	1.0
ET and techno-pedagogical competence	1	1.0
The role of technology in education	1	1.0
ET and entertainment	1	1.0
ET and global education	1	1.0
Industry 4.0 and ET	1	1.0
ET and management skills	1	1.0
ET and critical thinking skills	1	1.0
ET and professional development	1	1.0
Methods and techniques used in ET	1	1.0
ET-perception, experience, vision	1	1.0
ET-perception, attitude, self-efficacy	1	1.0
ET-perception, experience, vision	1	1.0

ET-behaviour, belief, preference, attitude	1	1.0
Self-efficacy perception towards ET standards	1	1.0
ET and active learning	1	1.0
ET and individualised teaching	1	1.0
ET and constructivist learning	1	1.0
ET and computer competencies	1	1.0
Use of ET and ARS	1	1.0
Teaching ET and literacy	1	1.0
ET and educational experiences	1	1.0
ET projects	1	1.0
ET and student motivation	1	1.0
ET and technology acceptance model	1	1.0
ET talent, interest, needs, hobbies, school curriculum	1	1.0
ET and legal requirements	1	1.0
Use of ET in science	1	1.0
Total	101	100

According to Table 15, when the distribution of studies in the field of educational technologies according to research trends is examined, it is found that the intensity is on 'Current Trends in ET Research Subjects'. Another remarkable point in Table 15 is the diversity of trends in the field of educational technology research.

4. Conclusion, discussion and suggestions

In this research, the content analysis of the studies conducted in Turkey and abroad over the last 5 years in order to determine the current trends in educational technology researches is presented. Within the scope of the purposive sample, the studies published in 2015–2020 in the field of educational technology researches, included in databases and journals, were examined and interpretations were made. In this context, 101 publications were evaluated in terms of content and method dimensions. A total of 15 research criteria were determined within the context of content analysis. These criteria are index, year of publication, country, university, department, number of authors, research area, method, educational level, sample group, sample number, data collection method, number of bibliography, analysis techniques and research trends. When the relevant criteria are examined, the results are as follows:

When the distribution of the studies conducted in the field of educational technology researches according to indexes is examined, it is found that the frequency belongs to The Education Resources Information Centre (ERIC) database. This result is related to the fact that the studied field belongs to the Institutes of Educational Sciences. While examining the literature, Keser and Ozcan (2011) examined the publications presented at the educational sciences conferences around the world and found that most of the articles presented were in the Science Direct database.

When the distribution of the studies conducted in the field of educational technology research according to the publication years is examined, it is found that the frequency is high in '2016'. In this context, it draws attention due to the decrease in the number of studies conducted in the related field in recent years. Keser and Ozcan (2011) also found a decrease in the number of articles in their studies after 2010. Similarly, Tosuntas, Emirtekin and Sural (2019) found that the number of graduate theses, in general, had declined in recent years. According to Akca-Ustundag (2013), the reason for this decrease was that the teaching staff of CEIT departments could not reach the desired level. In addition, most of the computer education and instructional technology department were closed for the last 2 years because many students do not prefer and many have come to the brink of closure.

When the frequency distribution by country in the field of educational technology is examined, the study area of 'Turkey' was identified. Consideration of scientific journals and databases in the field of research in educational technology operating in Turkey has an effect in favour of this conclusion. In the context of the countries to which the studies belong, Turkey is followed by the US. Another detail that draws attention in this context is that developing countries (Indonesia, Malaysia, Philippines) find their place in the ranking. In a similar result, (Keser and Ozcan 2011), educational sciences belonged to 20 different countries of the articles presented in the conference, and found that the density was in Turkey.

When the distribution of the studies conducted in the field of educational technology research according to the universities was examined, it was found that the frequency belongs to 'Eskisehir Anadolu University '. When evaluated abroad, Anadolu University was followed by 'TRNC Near East University' and 'USA University of National Education' with the same number of publications. As a similar result, Simsek et al. (2008) found that the majority of the studies in the related field belong to Anadolu University.

When the distribution of studies carried out in the field of educational technology researches according to institutes/departments is examined, it is determined that the frequency belongs to 'Institute of Educational Sciences' and more specifically to 'Computer and Instructional Technologies'. When the literature was examined, Tosuntas et al. (2019) showed that the frequency of studies in the related field belonged to the Institute of Science.

When the distribution of the studies conducted in the field of educational technology researches according to the number of authors is examined, it is found that the frequency is over 'single author'. Keser and Ozcan (2011) found that the related studies were mostly '2 authors'.

When the distribution of the studies conducted in the field of Educational Technology Research according to the research fields is examined, it is revealed that the frequency is on 'Current Trends in Educational Technology Research '. Another point that attracted attention in this context was the use of Educational Technologies in different disciplinary fields and the diversity of research fields. When reviewing the literature, Keser and Ozcan (2011) found that the subject that is frequently studied in the related field is 'Determination of Student Behaviours in the Scope of Educational Technologies '. Simsek et al. (2008), on the other hand, drew attention to the intensity of the research field 'Using Educational Technologies in Different Teaching Approaches.

When the distribution of the studies conducted in the field of educational technology researches according to the research methods is examined, it is found that the frequency is on the 'general screening model' which is preferred in quantitative research methods. When the literature is examined, it is revealed that the majority of the studies conducted in the related field are the general screening model in the same way (Keser & Ozcan, 2011; Tosuntas et al., 2019).

When the distribution of the studies conducted in the field of educational technology research according to educational levels is examined, it has been determined that the frequency is on 'university'. When the literature is examined, it is revealed that the educational levels of the studies in the related field are generally universities (Keser & Ozcan, 2011; Simsek et al., 2008; Tosuntas et al., 2019).

When the distribution of studies conducted in the field of educational technology research according to sample groups was examined, it was revealed that the frequency was 'university students'. In the study, pre-service teachers followed university students as a percentage. Tosuntas et al. (2019) have reached similar results in their research. When the literature is examined, it is seen that pre-service teachers are the most chosen sample group and this trend has not changed in the last years (Akca-Ustundag, 2013; Goktas et al., 2012; Gulbahar & Alper, 2009; Simsek et al., 2009).

When the distribution of the studies conducted in the field of educational technology researches according to the sample number was examined, the frequency was found to be between '200 and

above'. This result can be explained by the fact that the studies in the related field are mostly handled with quantitative research methods. When the literature was analysed, it was found that Yildiz (2019) reached a similar result. Tosuntas et al. (2019) found that the frequency was between 1 and 99. According to Goktas et al. (2012), researchers have limited time and resources, aim to access data easily, have limited statistics and method information the difficulty of ethical and research permission processes due to the number of samples does not exceed 1,000.

When the distribution of the studies conducted in the field of educational technology researches according to data collection tools is examined, it is found that the frequency belongs to 'questionnaire and scale' with the same percentage. Considering that most of the studies are quantitative researches, it is expected that quantitative data collection tools were used. When the literature was examined, it was observed that the researches reached similar results (Keser & Ozcan, 2011; Michalca & Miclea, 2007; Simsek et al., 2008; Tosuntas et al., 2019).

When the distribution of the studies conducted in the field of educational technology research according to the number of references found, the frequency is found to be between '26 and 50'.

When the distribution of the studies conducted in the field of educational technology researches according to the analysis techniques is examined, it is revealed that the density is in the '*t* test' which is frequently used in the analysis of the data showing normal distribution. The relevant test is followed by 'content analysis' and 'descriptive analysis' used in qualitative research methods. In addition to these tests, non-parametric tests such as Mann–Whitney U test, Kruskal–Wallis test, Chi-squared test and exploratory factor analysis, confirmatory factor analysis, metaphor and in-depth analysis attracted attention. When the literature is examined, these results are similar to previous studies (Goktas et al., 2012; Simsek et al., 2009; Sonmez, 2005; Star, 2019).

When the distribution of the studies conducted in the field of educational technology researches according to the research trends is examined, it is revealed that the density is in Current Trends in Educational Technologies, similar to the research field in the study criteria. This result can be correlated with the researchers' desire to identify the deficiencies existing in the related field and to make new scientific studies for these deficiencies. On the other hand, Yildiz (2019) found that research trends are more directed towards 'Technology Integration in Educational Technologies.

As a result, the following recommendations can be listed in the light of the findings obtained from the research:

- In future studies, the development and change of educational technology researches in the world can be discussed in a broader way by examining more sample groups, including wider time periods and non-indexed ones.
- Studies can be carried out in the areas of systematic change and management in order to provide different perspectives to the field.
- More attention should be paid to the sample cluster areas so that the selected cluster can be chosen impartially and randomly.
- By increasing the number of sample groups, more accurate values can be obtained.

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