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A Conceptual Framework for Systematic Review of Studies in Interactive Technology of Education Sciences in Turkey

Türkiye'de Eğitim Bilimleri Etkileşimli Teknoloji Çalışmaları Alanında Yapılan Çalışmaların Sistematik Olarak İncelenmesi

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ABSTRACT

In the new century, mobile devices and online tools have become increasingly important in the social lives of many individuals. In this context, it is important to access valuable information for life, understand information in a short time at once, and shorten the process of accessing meaningful information from a pile of data, especially if we are in the learning process. In this regard, this study aims to examine the research conducted on Interactive Web 2.0 tools, which have recently been included in many different areas of research in Turkey between 2014 and 2020. The research method is a systematic review, and the study uses the systematic method. Detailed information is provided on the structure of the systematic review, databases and keywords, study selection criteria, data extraction methods, data analysis methods, and the evaluation of potential biases. Based on an examination of the trends in studies conducted using the keywords "Interactive Technology", "Education", and "University Students" in national databases in Turkey (such as ULAKBİM and DergiPark) and the Google Scholar database, conclusions are drawn according to the criteria identified in the study

objectives. The data obtained in the study is categorized by year, research topics, study groups/samples, and research results. It is expected that the results of this study will contribute to new research in the relevant literature.

***Keywords**: Interactive technology, systematic review, Web 2.0 tools*

ÖZ

Yeni yüzyılda pek çok bireyin sosyal yaşamında mobil cihazlar ve çevrimiçi araçlar önemli yer tutmaktadır. Bu noktada yaşam için değerli olan bilgiye ulaşmak, bilgiyi kısa sürede bir seferde anlamak, öğrenme sürecindeysek veri yığınından anlamlı bilgiye ulaşma sürecini kısaltmak önemlidir. Bu bağlamdan hareketle bu çalışma, Türkiye'de 2014-2020 yılları arasında birçok farklı konuda daha önce yapılan araştırmalar kapsamına son zamanlarda dâhil olan Etkileşimli Web 2.0 araçları ile ilgili yapılan araştırmaları incelemeyi amaçlamaktadır. Araştırma yöntemi sistematik bir incelemedir. Çalışmada sistematik metodu kullanılmıştır. Sistematik derlemenin yapısı, veri tabanları ve anahtar kelimeler, çalışma seçim kriterleri, veri çıkarma yöntemleri, veri analizi yöntemleri ve potansiyel önyargıların değerlendirilmesi hakkında ayrıntılı bilgi verir. Araştırmanın amacı kapsamında belirlenen kriterlere göre Türkiye'deki ulusal veri tabanlarında (ULAKBİM, Dergi Park gibi) ve Google Akademik veri tabanında "İnteraktif Teknoloji" "Eğitim" ve "Üniversite Öğrencileri" anahtar kelimeleri kullanılarak yapılan çalışma eğilimleri incelemelerine dayalı çıkarımlarda bulunulmuştur. Çalışma sonucunda elde edilen veriler yıllara, araştırma konularına, çalışma grubu/örneklem ve araştırmaların sonuçlarına göre kategorize edilmiştir. Bu araştırma sonuçlarının ilgili literatürdeki yeni çalışmalara katkı sağlaması beklenmektedir.

***Anahtar Sözcükler**: İnteraktif teknoloji, sistematik inceleme, Web 2.0 araçları*

INTRODUCTION

Today, education in educational institutions with teacher-centered methods and tools has been replaced by multiple learning environments designed using information technologies. Yilmaz (2005) states that teachers use various teaching materials to provide a more effective, efficient, and attractive education. Accordingly, in the same way, different teaching tools are needed to make content more understandable and support teaching. Initially, it was ground-breaking with the integration of visual and auditory tools into education, and today it is used in teaching processes from the most basic to the most advanced level thanks to various software. The reason is that now there is a two-way interaction between technology and man (Erişti, 2010). Therefore, as people develop technology, technology transforms people. Technology

provides us with an environment for finding new ways to solve many of the questions and problems we face and developing new mindscapes by influencing the way we think. Thus, internet-based software, computers, and interactive applications are rapidly becoming widespread in teaching environments (Çınar, Doğan & Tüzün, 2019). Internet-based computers also allow students to acquire more permanent experiences than other teaching tools and also enable students to learn based on their own learning speed.

With the emergence of Web 2.0 technology, educational programs are now put into use, and it is aimed to increase the permanence of learning through collaborative platforms. As a result of rapid developments in science and technology, it is seen that the use of technology in learning and teaching environments where technology is integrated, educational software also plays a role in increasing the permanence of the course objectives by helping individuals to learn in multiple learning environments with materials that appeal to both vision and hearing. Computer-aided teaching includes other technologies, whether web-based or PC-based. Digitally-supported education can significantly contribute to the teaching of the target language in environments very close to real life and individual learning (Günday & Tahtalı Çamlıoğlu, 2015). Demirezen (1989) also stated that language learning gained an affective social and communicative dimension with the addition of tools and materials to learning environments. The author also expresses that the permanence in mind increases thanks to visual images.

By adding audio-visual elements to learning, subject-specific visuals, movies, animations, and other similar features allow teachers to perform learning in a shorter and more effective way (Deniz, 2004). Moreover, various websites offer activities related to the learning and teaching of students at all levels according to topics and themes. Thanks to these audio-visual activities provided by internet sites, any person can learn effectively and permanently (Kuşçu, 2017). As Günday & Aycan (2016) noted, "multimedia tools are a candidate to be at the top of the indispensable parts of our lives. In all societies, a different lifestyle is offered to people through multimedia tools such as computers, laptops, and mobile phones and internet, 3G, and 4.5G applications. These advances in technology have an impact on all areas, from science to art, from our daily life to education to life. In parallel with these developments, digitally prepared educational materials, on the one hand, communication media such as social media, many websites and software, on the other hand, are becoming widespread today" (Günday & Aycan, 2016).

The more the teacher can provide a teaching environment that appeals to many sensory organs with the support of technology, the more effective learning will take place at a higher

level in these environments. A teacher using Web 2.0 tools and interactive classroom tools adds vitality to his classroom thanks to the different activities, software, and products he brings to his classroom, the teacher's understanding of evaluation is diversified, and he can also evaluate the products produced by students beyond the written exam grades (Elmas & Geban, 2012). Thus, individualized teaching becomes easier. Students' reflection on the products they have created and the products produced by the others also allows them to take responsibility for their own learning as part of the process. In this way, one can talk about a more active and participatory class. In this context, the use of technology in education and teaching can meet the different needs of students. For example, a subject told on the internet can provide more personal studying opportunities to the individual. Questions that cannot be asked during the lesson in the classroom can be asked directly to the instructor through educational programs such as blogs and moodles. This ensures that the student is not excluded from the education and teaching process (Çağıltay & Göktaş, 2013). The fact that the student can access information whenever and wherever he wants, independent of time and place with technological tools, reduces individual differences and allows the student to learn at his own pace.

Based on this context, this research aims to examine the previous studies conducted between 2014 and 2020 in Turkey in the higher education level regarding the interactive Web 2.0 tools that have recently been included in the scope of research on many different topics with the systematic reviews method. Accordingly, the purpose of the research is to categorize the past research available in national databases in Turkey (such as ULAKBIM and DergiPark) and Google Scholar databases based on year, research topics, study group/sample, and results of the research. The results of this research are expected to contribute to new studies in the relevant literature.

Interactive Web 2.0 Tools Used in Higher Education

Computer and computer-aided and based educational technologies have led to radical changes in the field of educational sciences. Interactive learning tools provide a starting point for educators who want to make the classroom a more collaborative environment (Yıldırım, 2019). Considering the use of interactive classroom tools in the lessons to include the student in the course more and the students' lives with the technology around them, the classroom should also be included in this process.

Since the review of the interactive Web 2.0 tools of research conducted in the literature relating to the use of higher education in Turkey is examined in this study, interactive Web 2.0 tools that are primarily appropriate for university students studying in higher education are

discussed in detail below (Bektaş, 2020; Fidan & Debbağ, 2020; Karavaş, 2020; Kiper, 2020; Sağır, 2020):

Google Sites: With Google Sites, a website and blog page can be created for personal or educational use. The fact that it is available to all teachers regardless of the branch makes it easy for teachers to perform all the tasks requested by students on the digital platform very quickly. All Google products work synchronously with one another. For this reason, a document created in Google Drive, a presentation prepared with Google Presentations, and the results of a survey carried out with Google Forms can be easily added to a blog created with Google Sites.

Course Hero: This is a platform focused on finding study resources. Course Hero aims to ensure that students and educators achieve success by enabling students or instructors to share their own study resources to help others learn, as well as by requesting personalized homework from teachers on the platform. Course Hero learning/interaction environment focuses on university students (Course Hero, n.d.).

Edmodo: It is a global education network that connects teachers, students, administrators and institutions with the people and resources they need to reach their potential. The focus is on educators' ability to connect and collaborate with students, parents, and each other in the safest and easiest way possible. Through Edmodo, educators can log in as a teacher and create a group, organize quizzes, send messages, and share course documents (Wikipedia contributors, 2023).

Moodle: It can be used on your computers or portable devices via browsers on the website. Moodle offers educators the opportunity to create environments where they can manage their learning processes for secondary school, high school, and university students. At the same time, educators can contribute to their personal and professional development through learning communities created with Moodle (Moodle, n.d.).

Twitter: By creating personal profiles on a digital social network, it is one of the popular social networking platforms where other users can follow you, and you can follow them. Educators and students can contribute to their individual development through hashtags created for educational purposes. They can follow the education agenda via Twitter by following personal or corporate accounts (Koç, 2022).

Facebook: It is the world's largest web-based social networking platform that allows you to create personal profiles on a digital social network, and features communication and

interaction with other users. In addition, the platform gives an individual or corporate organizations the opportunity to create options such as organization and event in a digital environment in the easiest way with functions such as pages, groups, surveys, live broadcasts, and events. Besides, students and educators can participate in groups, people, pages, and events to support their individual development through Facebook (Saykılı, 2014).

WordClouds: It is a free online word and tag cloud creator. It works on PC, tablet or smartphone. You can paste text, upload a document or add a link to a website to automatically generate a cloud of words or tags. You can customize your cloud-based on shapes, themes, colors, and fonts. You can also edit the word list, cloud size, and space size. With WordClouds, which can be used in almost all educational activities from primary school to university, lessons become more fun, meaningful, and efficient (WordClouds.com, n.d.).

Emaze: This is a cloud-based application similar to other interactive presentation creation tools. It is a tool that changes the way teachers and students interact in the classroom and helps to redesign the presentation platform to be used in teaching as exciting and innovative. Unlike many other presentation platforms, Emaze allows teachers to customize presentations to tailor their lesson plans to the learning needs of their students. Students studying at high school and university level are able to use all functions of Emaze fully (Emaze, n.d.).

Quizlet: It started with educational game cards that can be used for language learning in the digital environment. The site has developed rapidly and increased its effectiveness with new tools. Quizlet is based on learning from a secret memorization perspective. It prepares students through the tools is uses and repetition technique. It is an effective application to create lasting vocabulary at the middle school, high school and university level (Quizlet, n.d.).

Synap.ac: It is a unique online learning tool that uses scientifically proven research to help gain more information in less time. Synap uses a memory technique called “spaced repetition” to help gain more information in less time. You can only prepare multiple-choice questions on the social media-based and repetitive site. Multiple choice questions can easily adapt to scientifically based topics. For this reason, most of the exams prepared on the website are based on medicine, mathematics, and science (Synap, n.d.).

Testmoz: It is a test creation tool that does not require membership, and it is very easy to use and simple. Besides, students who will take the test do not need to be a member. The only thing you need is the link to the test. The main difference from the other web 2.0 tools prepared for measurement and evaluation is that the website does not have advertisements, a pop-up

window, nor pictures and videos on the page. This makes it easier to use the website in classrooms with very low-speed internet connections (TestMoz, n.d.).

METHOD

The methodology of the research is a qualitative systematic review. The qualitative systematic review method aims to determine the research method (quantitative, qualitative, and mixed research method) of the studies conducted in the relevant literature for the subject or research trend determined by the researcher and to make inferences by interpreting the data obtained by reviewing according to specific criteria (Çalık & Sözbilir, 2014). According to this research method, the subject to be analyzed is interpreted by category, theme, and coding based on the outputs of the studies in the relevant literature.

Data Collection

In the process of collecting data for the research, a review was carried out on national databases (such as ULAKBİM and DergiPark) and Google Scholar database with the keywords "Interactive Technology", "Education," and "University Students" on October 15, 2020. Accordingly, the criteria for inclusion in the research are to include the relevant keywords in the title and abstract sections, the document type to be an article, and the full text of the research to be accessible. The exclusion criteria from the study are non-experimental research as research methods, reviews, case reports, meta-analyzes, and editorial material articles, and short questionnaires. In addition, duplicate studies were excluded.

As a result of the review, between January 2014 and October 2020, in line with the criteria determined with relevant keywords,

- A total of 12 articles from ULAKBİM, DergiPark databases and
- A total of 26 articles from Google Scholar database were accessed.

Accordingly, a total of 38 articles were accessed from databases based on the criteria determined as a result of the review.

Data Analysis

Descriptive analysis was used in the analysis of the articles reviewed based on the criteria determined in the study. Thus, the theoretical framework in the relevant literature was used in the descriptive analysis of the coding (Miles & Huberman, 2015). In the analysis of the data obtained in the study, analytical themes were also used by using the descriptive analysis and descriptive themes obtained as a result of the inductive analysis.

FINDINGS

The findings of the distribution of the studies reviewed within the scope of the research by years are given in Table 1.

Table 1. Distribution of Studies by Year

Year	Frequency (f)
2014	4
2015	7
2016	6
2017	13
2018	3
2019	4
2020	1
Total	38

According to Table 1, which shows the distribution of the studies by year (38), 3 of the studies were conducted in 2014, 7 in 2015, 6 in 2016, 13 in 2017, 3 in 2018, 4 in 2019, and 1 in 2020.

The findings of the distribution of the studies reviewed within the scope of the research by topic are given in Table 2.

Table 2. Distribution of Studies by Topic

Theme	Coding	Frequency (f)
	Augmented reality (AR) applications used for teaching vocabulary in foreign language education	1
	Perceptions of the concept of digital stories	1
	Perceptions regarding the use of the Scratch tool, which is an educational programming environment in programming teaching	1
	Opinions on the usefulness and ease of use of the distance education system UKEY (Uludağ University Corporate Education And Research Activities Governance System)	1
	Prospective Geography teacher' opinions on the FATIH Project	1
	Prospective teachers' opinions on the use of Web 2.0 tools in educational processes	1
	Students' perspectives on the distance education system during the Covid-19 pandemic, their self-efficacy on the distance education system and their opinions on accounting courses conducted with distance education	1
	Opinions on enriched e-books	1
	Students' perceptions of using Prezi in teaching accounting	1
	Student opinions on the use of technology in accounting courses	1
	Students' opinions on the distance education system	1

Opinion / Perception / Suggestions	The opinions of the prospective teachers who took the graphics and animation courses on the use of graphic-based programs in material development	1
	Opinions on the FATIH project and use of technology in teaching mathematics	1
	Perceptions of Edmodo learning management system towards interactive e-support environments focused on learning English in the language learning processes of those who learn English as a foreign language	1
	Opinions of prospective mathematics teachers about the use of dynamic software and interactive whiteboard technology in teaching mathematics	1
	The opinions of the prospective teachers who attended the "Seminar on Examination of Web 2.0 Tools for Prospective Teachers and Their Use in Learning Environments	1
	Prospective teachers' opinions on interactive whiteboard-based teaching	1
	Medical school students' opinions on interactive videos	1
	Student opinions on the use of mobile technology in providing in-class feedback and correction	1
	Prospective teachers' opinions on computer-aided course instruction	1
	The opinions of the students of the Faculty of Economics and Administrative Sciences on the use of technology in the accounting courses	1
	The effect of micro-teaching practices centered on smartboard on prospective science teachers' perceptions of technological pedagogical content knowledge and use of smart boards	1
	Prospective teachers' opinions on the use of interactive lesson instruction in teaching geography	1
	Prospective teachers' opinions on the use of interactive boards in the context of the FATIH Project	1
	Prospective information technologies teachers' perceptions about e-book and interactive book	1
	The Effect of Augmented Reality (AR) Application on Vocabulary Learning and Memorability in Foreign Language Course	1
	Use of digital stories in foreign language education	1
	The effect of Web 2.0 applications on educational processes	1
	Instructional Use of Blogs in Teaching Turkish as a Foreign Language	1
	The effect of digital stories created using the Toondoo application on students' academic achievement and attitudes	1
	Determining the follow-up, satisfaction, and achievement levels of students in English lessons given through the distance education system	1
	The effect of flipped learning in algorithm and programming education on the academic achievement of university students	1
	The effects of the distance education system on users within the framework of the Technology Acceptance Model	1
	The effect of modern physics teaching based on interactive board in accordance with the inquiry-based learning approach on academic achievement and motivation	1

Contribution to Learning	Analysis of communication faculty students' awareness and interest levels about AR applications and their application skills	1
	The effect of interactive teaching material on achievement and attitude in the virtual classroom environment	1
	The effects of a comprehensive web-based interactive educational material that includes theoretical learning areas in the design course curriculum in the field of arts education on students' academic achievement	1
	The effects of interactive map exam software on students' academic achievement in teaching geography	1
Usage Trend / Status	Tendencies of Prospective Music Teachers to Use Notation Writing Software	1
	The usage levels of applications that can teach geographical ınformation and skills on smart devices	1

Table 2 shows the distribution of studies by topic (40) and these studies were reviewed in terms of three different themes, including Opinion / Perception / Suggestions (25), Contribution to Learning (13), and Usage Tendency / Status (2).

The findings of the distribution of the study group/sample of the studies reviewed in the context of the research are given in Table 3.

Table 3. Distribution of Studies by Study Group/Sampling

Study Sample / Study Group / Study Document	**Frequency (f)**
Students of the Department of Computer Education and Instructional Technology	3
Prospective Teachers Studying in the Faculty of Education	2
Prospective Teachers of Information Technologies	2
Students of the Computer Engineering Department	1
Students of the Faculty of Economics and Administrative Sciences	1
Students of the Music Teaching Department	1
Students of the School of Foreign Languages	2
Prospective Teachers of Geography Education	5
Prospective Teachers of Social Studies	2
Students of Vocational School	3
Students of the Department of Health Management	1
Students Learning Turkish as a Foreign Language	1
Instructors Teaching Turkish as a Foreign Language	1
Students of the Child Development Department	1
Students of the Department of Business Administration	1
Students of the Department of Mechanical Engineering	1
Students of the Department of Computer Programming	1
Prospective Teachers of Preschool Education	2
Prospective Teachers of Elementary Mathematics	1
Prospective Teachers of Mathematics	1
Prospective Teachers of Science	3
Students of the Faculty of Medicine	1
Students of the Faculty of Communication	1
Students of the Faculty of Mechanical Engineering	1
Prospective Teachers of Elementary Teacher Education	2
Students of the Faculty of Economics and Administrative Sciences	1
Students of the Faculty of Fine Arts Education	1
Total	43

According to the findings in Table 3, which shows the distribution of the research by study group/sample (43), there are prospective teachers from different branches (22), students of the engineering department (3), students of economics and administrative sciences (4), vocational school students (5), students of the school of foreign languages (2), students learning Turkish as a foreign language (1), instructors teaching Turkish as a foreign language (1), students studying at the faculty of communication (1), students studying at the faculty of fine arts education (1), and students studying at medical faculty (1).

The findings of the distribution of the results of the studies reviewed within the scope of the research are given in Table 4.

Table 4. Distribution of Studies by Results

Theme	Coding	Frequency (f)
Positive Effects	AR applications save time and provide memorability	1
	Providing motivation, usability and ease of use for programming with Scratch	1
	AR applications ensure the permanence of vocabulary learning and learned words	1
	High level of finding useful according to technology acceptance for UKEY	1
	Perceiving notation software necessary and useful for classroom environments	1
	The use of digital stories, the permanence of the lessons and the opportunity for students to express themselves more easily and comfortably, its use being fun and motivating	1
	With the FATİH project, students' technology use skills will improve, and the project will increase quality and efficiency in education.	1
	The importance and necessity of the FATİH project to keep up with the age	1
	Effectiveness and usefulness of using social media in educational processes	1
	With the distance education system, the ability to rewatch the lessons, flexible learning opportunities and saving time	1
	Blogs, a new form of learning, increase motivation towards learning by preparing fun and interactive learning environment.	1
	The positive impact of digital stories on students' achievement and attitudes towards the lesson	1
	Digital stories enable active participation in the lesson, increase the memorability and motivation for the lesson.	1
	Page design of enriched e-books to be original and motivational	1

The use of Prezi in accounting education provides a better understanding of accounting lessons and makes the lessons more interesting and fun	1
Providing education with the distance education system is an efficient practice if the lessons are followed regularly by the student	1
When flipped learning is well structured, it is an effective method that increases academic achievement for teaching programming at the higher education level.	1
Sufficiency of the course content in the courses with graphic and animation activities	1
The concentration of FATİH Project on the content, effectiveness and interests of the students in a mathematics lesson	1
Positive perceptions of those who learn English as a foreign language about the interactive Edmodo e-learning environments	1
The fact that the distance education system is useful and easy, and it has a positive effect on users' attitudes towards the system.	1
The positive effect of self-efficacy to use distance education on perceived usefulness	1
Teacher candidates expressing positive opinions about the seminar activities carried out for Web 2.0 education and about the post-event learning outcomes	1
The combination of dynamic mathematics software and interactive board technology contributes to the concretization of the subject, increases memorability, facilitates the understanding of concepts, and saves time.	1
Interactive board-based teaching materials make the lesson fun and increase participation, concretize abstract concepts, facilitate learning, and provide memorability	1
Medical students find interactive videos suitable for learning the symptoms of autism and making it easier to diagnose	1
Most of the communication faculty students affirm the objectives about the effects of AR applications on the education and learning process.	1
Mobile technology system to be effective in active participation, repetition and comparison and contribute to the achievement	1
Computer-aided lesson instruction to be suitable for geography teaching, to provide effective and permanent learning when applied, to make the lesson interesting, to increase the interaction between teacher and student	1
Liking the interactive feature of the instructional material and contributing to learning	1
The use of smart boards has a positive effect on TPACK's self-confidence in general	1
The positive effect of the course activities carried out by using web-based teaching materials in design courses on students' knowledge	1
Interactive map exams increase the academic achievement of students in geography teaching	1
Interactive lesson instruction is more effective than traditional methods, the lesson becomes more interesting and understandable, and the information is permanent	1
Students of teaching science have positive opinions and competencies regarding the use of interactive boards in their undergraduate education and professional life.	1

	Perceptions' of prospective teachers of information technologies about e-books are easy to carry and "appeal to more than one sense."	1
	Some technical problems (QR code detection problems, small screen size, etc.) in the application process.	1
	The digital narrative method can prevent improvisation in speaking lesson	1
	Due to the economic and geographical differences between the regions and the different levels of teacher-student readiness, the project cannot be applied equally throughout the country.	1
	Low technology use skills of senior teachers preventing the implementation of FATİH Project	1
	Students not adopting the distance education system too much	1
Negative Effects	Not being able to reach the internet and the instructor with the distance education system and feeling socially isolated	1
	Too many texts in enriched e-books	1
	The negative perception of courses with graphic and animation content	1
	Difficulties in using the program on the interactive whiteboard, sensitivity in touch, students' intervention to the technologies used	1
	The mobile technology system is not effective in students' motivation for the lesson	1
	Negative opinions of prospective teachers of elementary teaching about the use of interactive boards in their undergraduate education and professional life	1
Associations with Applications	Digital stories are mostly associated with "e-book" apps	1
	Low use of applications that provide geographic knowledge and skills on smart devices	1
Usage Status of Applications	Wanting to use Web 2.0 tools in education, but not enough knowledge	1
	Students do not benefit from technology while preparing for accounting courses and exams.	1
	Students benefit from technology while preparing for accounting courses, lessons and exams	1

According to Table 4, four different themes were obtained based on the distribution of research results (52). These are positive effects (36), negative effects (11), associations with applications (1), and the usage status of applications (4).

RESULT AND DISCUSSION

In the 21st century, the rapid speed of change and the development of technology has managed to influence different disciplines due to various reasons. The majority of disciplines have been adapted to keep up with technological transformations. Undoubtedly, one of the fields that technology has affected the most is education. Nearly all elements from the teaching

environment to the material used in the teaching and learning process are integrated with technology. For this reason, it is seen that there has been a recent increase in systematic review studies to reveal the trends in educational sciences literature. This research aims to examine the researches on interactive Web 2.0 tools in higher education in Turkey between the years 2014-2020.

Research data collected under the national databases in Turkey (such as ULAKBİM and Dergi Park) and Google Scholar databases are limited to three keywords/phrases in terms of the review. In addition, since it is limited to three research questions, it cannot be suggested that it includes all articles on interactive technology in the field of education.

The results obtained within the scope of the purpose of the research are given below in line with the relevant literature:

The distribution of the studies by year is as follows: 3 of them in 2014 (Akyüz, Kurnaz, & Kabataş Memiş, 2014; Koç & Yeşiltaş, 2014), 7 in 2015 (Morkoç & Erdönmez, 2015; Özer & Türel, 2015), 6 in 2016 (Akçayır & Akçayır, 2016; Yükseltürk & Altıok, 2016), 13 in 2017 (Erol, 2017; Yılmaz, 2017), 3 in 2018 (Öztürk & Erdoğan, 2018; Temelli, 2018), 4 in 2019 (Bozna, 2019; Yaşlıca, 2019), and 1 in 2020 (Serçemeli & Kurnaz, 2020).

The distribution of the research by topic is as follows: Opinion/Perception/Suggestions (Türker & Genç, 2018; Alım & Siyamoğlu, 2017; Akçayır & Akçayır, 2016; Fidan, Aslan & Subaşı, 2015; Akyüz et al., 2014), Contribution to Learning (Yaşlıca, 2019; Gömleksiz and Pullu, 2017; Karaca and Ocak, 2017; Tatlı and Aksoy, 2017; Sarı & Güven, 2014) and Usage Trend/Status (Alım & Siyamoğlu, 2017; Okay, 2016).

The distribution of the studies by study group/sample is as follows: Prospective teachers in different branches (Alım & Siyamoğlu, 2017; Korkmaz & Korkmaz, 2015; Akyüz et al., 2014), students studying in the engineering department (Karaca & Ocak, 2017; Varol, Özer, & Türel, 2014), students of the faculty of economics and administrative sciences (Serçemeli & Kurnaz, 2020; Temelli, 2018), students of the vocational school (Metin, Karaman & Şaştım, 2017; Morkoç & Erdönmez, 2015), students studying at the school of foreign languages (Bozna, 2019), students learning Turkish as a foreign language and instructors teaching Turkish (Türker & Genç, 2018), students studying at the faculty of communication (Sayımer & Küçüksaraç, 2015), students studying at the fine arts education department (Yılmaz, 2017) and students medicine faculty (Taşlıbeyaz, Dursun, & Karaman, 2015).

The distribution of the research results are as follows: Positive Effects (Akgür et al., 2019; Alım & Siyamoğlu, 2017; Türker, 2016), Negative Effects (Bozna, 2019; Öçal & Şimşek, 2017; Fidan et al., 2017; Akyüz et al., 2014), Associations with Applications (Özer & Türel, 2015) and Usage Status of Applications (Özüçelik, 2019; Temelli, 2018; Özer & Özer, 2017).

Interactive technologies have a great place and importance today, where the virtual world is used effectively, even the teacher-student relationship can continue over blogs and social networks, and information sharing is facilitated. In the teaching-learning process, the teacher, learner and other learning resources and environments mutually influence each other. It is known that this influence positively contributes to learners' learning. Interaction is considered as one of the critical components in the formation of knowledge, especially in cases where learning takes place with the help of interactive technology tools (Yeşil, 2020). Therefore, the most general purpose of active and meaningful learning is the interaction between student-student and student-teacher, and it reveals the importance of interactive tools that will be used to help students gain practical communication skills.

CONFLICT OF INTEREST

There is no personal or financial conflict of interest between the authors of the article within the scope of the study.

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