Analysis of the last 10 years of articles and theses on authentic learning: A meta analysis study

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ABSTRACT

The aim of this research is to examine articles and thesis studies in the field of authentic learning approaches and applications in education in the last 10 years and to reveal the trends in this context. In the methodology part of the research, meta-analysis method was used. Meta-analysis studies refers to the critical review and integration of the findings of seperate studies. For the purpose of the study, a total of 111 pieces of research, published between 2010 and 2021 and selected by purposeful sampling method were analyzed. Databases used in this research are Eric, IEEE Xplore, Ebsco, Springer, Science Direct, Scopus, Web of Sciences. Authentic learning approaches and applications in education throughout the world were examined under 16 criteria. These criteria were*; databases, journal name, year of publication, country, institute, number of authors, research area, method, education level, number of sample, data collection method, number of references, analysis techniques, research trends.* These data were interpreted based on percentage and frequency. As a result, authentic learning approaches and applicationare integrated in many fields such as ICT, engineering, network learning technology, nursing, curriculum and instruction, geography, medicine and more.

Keywords: Authentic learning approaches, authentic learning applicationare, meta-analysis, publication classification.

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INTRODUCTION

With the new understanding of education in the 21st century, the roles of teachers and students in the classroom have also changed. With this understanding, students ceased to be individuals who simply memorize and store information and repeat only when asked. New student profile in modern education approach; accessing the information themselves, verifying the information they obtained through literacy filter, associating them with daily life contexts, solving problems they encounter by transferring them to different situations and being individuals equipped with 21st century skills (Newmann et al., 2007; Burton, 2011). Similarly, in modern classroom environments, teachers see the differences between students as a natural richness, and strive to reveal the curriculum hidden in the student. In addition, according to this understanding, the teacher should guide the students with methods that trigger feeling, thinking and doing

instead of transferring knowledge and ensure that the student learns in a natural learning ecosystem (Pearce and Wood, 2016).

When the literature is examined, a learning teaching approach that can meet the features of this new understanding draws attention: "authentic learning approach". When the literature is examined, authentic learning concept has definitions by different authors. Authentic learning according to Lombardi (2007), is a learning approach that focuses on the real world, complex problems and solutions using role-play exercises, problem-based activities, case studies and participation in virtual practice communities. Authentic learning is one of the approaches that can be effective in providing the transformation required by the age with its flexible structure offered to teachers in practice. The foundations of authentic learning, based on constructivist

understanding, it is structured by complex, extraordinary and interesting authentic tasks with authentic materials that relate to real life, put the student at the center, ensure social participation and are used to accomplish these tasks (Guner, 2015).

Today, the places where education is carried out are not limited to the classroom, and it is thought that it will be a learning environment where students will be active and can be included in the education in the outside of the classroom environment where they will learn by living. This is only possible with authentic learning. Therefore, it is imperative that educators consider the use of authentic learning models to help students develop their twenty-first century competences (Cho, Caleo and Kapur, 2015).

The extraordinary developments and changes in technology have revealed a new dimension of authentic learning: "online authentic learning". In this approach, multimedia elements (sound, picture, graphics, music, video animation, etc) are combined with authentic educational contents (Pellegrino, 2017).

When the features of authentic learning are examined; real world applicability of tasks, student directed learning, open-ended inquiry, exploration and collaboration, community discourse, high-order thinking, mastery of key concepts, flexibility of learning environment and resources can be sorted as. Authentic learning has a total of 9 components. These are authentic context, authentic activity, expert performance, multiple perspectives and roles, collaboration, reflection, articulation, one-to-one training and structured support (coaching and scafolding) and authentic evaluation; as an example of applications where authentic learning is used in higher education:

In the context of research on the use of the authentic learning approach and applications in education, Uzunboylu et al. (2020) examined the effect of online and blended learning environment in Mathematics teaching based on authentic learning approach to students' success and self-effıcacy. The study group for this work consisted of 180 students who were studying in different Health Services Vocational High School in North Cyprus and were Basic Mathematics within the framework of the experimental model, 2 experimental and 1 control group were formed with random assignments and were included in different learning environments. The Basic Mathematics education given in all three groups was based on authentic learning standards presented by Newmann and Wehlage (1993) and 10 dimensions of authentic learning. Four data collection tools (personal information form, mathematics lesson achievement test, online authentic learning self-efficacy scale, and student opinion scale related to Moodle LMS in a online educational learning environment) were developed.

Gurjar (2020) examined in his study leveraging social networks for authentic learning in distance learning teacher education. The course design was structured around nine principles of the authentic learning framework. As a result, it was suggested in the study that educators could use social networks to benefit from authentic learning environments in various disciplines.

Duchatelet et al. (2021) discussed the development of self-efficacy in an authentic higher education learning context. In this context simulations have become active learning methods widely used to teach complex, dynamic processes. Results show a statistically significant linear increase in authentic self-efficacy in negotiating over the period of the simulation.

Purpose of the research

The purpose of this research authentic learning approaches and applications in education throughout the world is to reveal research trends by classifying relevant publications.

Important of the research

The rapid changes and developments in technology have affected the education discipline field as well as every field. In this context, classrooms managed with the traditional educational approach have been replaced by modern education. In this modern education, learners are qualified as individuals who question knowledge, discover, solve problems, think critically, in short, have high-level skills. Teachers/lecturers, on the other hand, have ceased to be the main source of knowledge and qualified guide or coach in learning and teaching environments in modern learning approach. Besides all these learning environments outside of school are also defined as learning environments that strengthen students' learning at school and show that the theoretical knowledge learned is related to real life. One of the approaches based on these principles and supporting their implementation in learning environments is the "authentic learning approach".

Authentic learning requires students to demonstrate complex skills in situations that require collaboration, problem solving, research and communication skills, and prepares the purpose and conditions of real life for learning (Laurent Clerc National Deaf Education Center Gallaudet University, 2010). When the literature is examined, it is predicted that the use of authentic learning approaches and practices in the learning and teaching process will increase student success, self-efficacy, and attitudes and motivations towards learning at all levels of education (Shanga et al. 2019; Stoetzel and Shedrow, 2020). In this context, the compilation of the researches on authentic learning practices and approaches throughout in the world was made using the meta-analysis method. It is thought that the research results obtained will meet the needs in terms of which dimensions, educational levels, sample groups etc. are focused on by considering more specific discipline areas of the concept of authentic learning. Thus, the deficiencies in the field will be revealed and the ground

will be prepared for future research in this sense.

Limitations of the research

Limitations identified for this research includes:

- limited to the meta-analysis method,
- limited to the research data of the last 10 years (2010-2021),
- limited to 111 articles dealing with the topic of authentic learning practice and approach,
- limited to databases are Eric, IEEE Xplore, Ebsco, Springer, Science Direct, Scopus, Web of Sciences,
- limited to 16 research criteria,
- limited by frequency, percentage and Kappa value in analysis phase,
- limited to Authentic Learning Approaches, Authentic Learning Applications Are, Meta-Analysis, Publication Classification as keywords.

METHOD

Research design

This research is structured with meta-analysis method. Meta-analysis is a method of combining the results of multiple independent studies on a specific subject and performing statistical analysis of the obtained research findings (Creswell, 2014).

Population sampling

The population of the research comprises databases, journals, congress and conferences through the world in the area of authentic learning approaches and applications in education. The research sample consists of databases incorporating authentic learning approaches and applications research between 2010 and 2020; Eric (14), IEEE Xplore (13), Ebsco (6), Springer (21), Science Direct (14), Scopus (18) and Web of Science (16).

Data collection

Initially databases, journals, congresses and conferences relating to authentic authentic learning approaches and applications in education and research between 2010 and 2020 within world were searched, followed by a similar world-wide search. The findings were examined and interpreted.

Validity of the research

The studies have been numbered to make sure that every study is represented once in the sample. The coding form that has been developed is applied in the same way to all meta-analysis studies.

Reliability of the research

The intercoding consistency has been found to be sufficiently robust with a value of .82; and revised with a Kappa parameter. The Kappa value was found to be .81 in this study. According to Cohen (1988), this value is almost perfect, as it lies between .81 and 1.

FINDINGS

The results and interpretations of the 16 criteria determined for this research are given in the tables below. According to this:

Distribution of studies in the field of authentic learning approaches and applications by publication databases

In Table 1, the distribution of the studies in the field of authentic learning approach and applications is given according to the databases. Accordingly, it has been determined that the intensity of the studies in the relevant field is on the **"Springer database"** (21 publications and 18.9 percent). Springer is an interdisciplinary database. Access to 2073 journals is provided under the license agreement. According to Table 1, Springer is followed by **"Scopus and Web of Science"** by percentage. Web of Science and Scopus are two world-leading and competing citation databases.

Distribution of studies in the field of authentic learning approaches and applications by publication journal name

An academic journal drew attention to the fact that the journal categories of publications in the field of authentic learning approaches and applications were examined. The related journal name is **"Tech Trends"** (7 publications and 6.4 percent) which is indexed by Springer. TechTrends is a leading journal for professionals in the educational communication and technology field. TechTrends journal is followed by **"Computers & Education"** journal, which is also scanned in Springer again.

Distribution of studies in the field of authentic learning approaches and applications by publication year

When Table 2 is examined, it is seen that the publications on authentic learning approaches and applications

Table 1. Distribution of studies in the field of authentic learning approaches and applications by publication databases.

Publication Index	Classification	f	%
Springer	Database	21	18.9
Scopus	Database	18	16.2
Web of Science	Database	17	15.3
Science Direct	Database	14	12.6
Eric	Database	13	11.7
IEEE Xplore	Database	13	11.7
Proquest	Database	9	8.1
Ebsco	Database	6	5.4
Total		111	100

Table 2. Distribution of studies in the field of authentic learning approaches and applications by publication year.

Publication year	f	%
2020	29	26.1
2018	13	11.7
2019	12	10.8
2017	10	9.0
2016	8	7.2
2015	8	7.2
2012	8	7.2
2021	7	6.3
2011	5	4.5
2014	4	3.6
2013	4	3.6
2010	3	2.7
Total	111	100

Table 3. Distribution of studies in the field of authentic learning approaches and applications by publication country.

Publication country	f	%
The U.S.A.	35	31.5
Australia	13	11.7
Taiwan	9	8.1
Canada	4	3.6
Turkey	4	3.6
China	3	2.7
Finland	3	2.7
Germany	3	2.7
Indonesia	3	2.7
Malaysia	3	2.7
Israel	3	2.7
Belgium	3	2.7
Cyprus	3	2.7
India	3	2.7
Iran	2	1.8
Romania	2	1.8
Russia	2	1.8
Columbia	2	1.8
Denmark	2	1.8
Ecuador	1	.9
England	1	.9
Estonia	1	.9
Hong Kong	1	.9
Netherlands	1	.9
New Zeland	1	.9
Oman	1	.9
South Africa	1	.9
Thailand	1	.9
Total	**111**	**100**

belong to **"2020 year"** as a frequency (29 publications and 26.1 percent). This finding is an indicator of the preference of modern teaching approaches integrated with technology instead of traditional teaching method in recent years. Moreover, the presence of publications for Authentic Learning in the first month of 2021 draws attention.

Distribution of studies in the field of authentic learning approaches and applications by publication country

When Table 3 is examined, the country frequency of the publications in the field of authentic learning approach and applications is determined as **"America"** (29 publications and 26.1 percent). Also, when the findings are examined, it is seen that there is a serious difference between America and other countries. America's closest follower is Australia. Out of them Taiwan, Canada and Turkey is also noteworthy another countries in the ranking.

Distribution of studies in the field of authentic learning approaches and applications by publication university

When the distribution of publications in the field of

authentic learning approach and applications according to universities is examined; a university draws attention. This university is the **"National Central University"** (7 publications and 6.3 percent) in **Taiwan**. Diversity has been identified when examining other university rankings on the list.

Distribution of studies in the field of authentic learning approaches and applications by publication institute/department

When the distribution of publications in the field of authentic learning approach and applications according to institute is examined; the density was found to be above the "**ICT"** (Information Computer Technology; 23 publications and 20.7 percent) department. ICT is followed by **"Faculty of Education"**. Diversity has been identified when examining other institute/department rankings on the list.

Distribution of studies in the field of authentic learning approaches and applications by publication number of authors

In terms of author numbers (Table 4) it can be seen that 37 publications had **"2 authors"** making up a proportion of 33.3%. Another remarkable point is that single author studies are 23.4%.

Distribution of studies in the field of authentic learning approaches and applications by research area

As shown in Table 5, when the distribution of the studies in the field of authentic learning approaches and applications according to research area, it was determined that the intensity was on "**Development of students' academic success through authentic learning"** (12 publications and 12.6 percent). Development of students' academic success through authentic learning is followed by "**Authentic learning study approach and learning outcomes"** (10 publications and 10.7 percent). In addition diversity has been identified when examining other research area rankings on the list. Remarkable detail in the table, the use of authentic learning approaches and applications not only in education but also in different disciplines such as "**medicine"** and "**engineering"**.

Distribution of studies in the field of authentic learning approaches and applications by research method

As shown in Table 6, when the distribution of the studies

Table 4. Distribution of studies in the field of authentic learning approaches and applications by number of authors.

Number	f	%
1	26	23.4
2	37	33.3
3	23	20.7
4	13	11.7
5	7	6.3
6 and more	5	4.5
Total	111	100

in the field of authentic learning approaches and applications according to research method, it was determined that the intensity was on **"Qualitative research / case study"** (28 publications and 25.2 percent). Qualitative research/case study is followed by **"Quantitative research / survey study"** (23 publications and 20.7 percent). In addition diversity has been identified when examining other research method rankings on the list. Remarkable detail in the table, is the existence of design-based publications.

Distribution of studies in the field of authentic learning approaches and applications by education level

As shown in Table 7, when the distribution of publications in the field of authentic learning approaches and applications according to education levels is examined, it has been determined that the density is above the **"university"** (61 publications and 53.5 percent). University is followed by **"Primary School"** (11 publications and 10.9 percent). The evaluation was made on 102 publications. This is because 9 publications are report study.

Distribution of studies in the field of authentic learning approaches and applications by sample group

As shown in Table 8, when the distribution of publications in the field of authentic learning approaches and applications according to sample group is examined, it has been determined that the density is above the **"university students"** (45 publications and 29.5 percent). University is followed by **"trainees taking online courses"** (9 publications and 10.6 percent). The evaluation was made on 102 publications. This is because 9 publications are report study. Diversity has been identified when examining other sample group rankings on the list.

Table 5. Distribution of studies in the field of authentic learning approaches and applications by research area.

Research area	f	%
Development of students' academic success through authentic learning	12	12.6
Authentic learning study approach and learning outcomes	10	10.7
Authentic class reviews	9	9.4
Authentic learning approaches and practices in higher education	9	9.4
Authentic learning activities with mobile applications	8	7.4
Authentic learning activities with online learning	6	6.6
Authentic language teaching in online courses	6	6.6
Authentic learning perspective for students and teachers	5	4.7
Student perceptions of an authentic classroom	5	4.7
Creating authentic learning-based games in learning environments	4	3.6
An authentic learning environment rich in technology	4	3.6
Integration of authentic learning principles into social media environments	4	3.6
Distance learning based authentic learning experiences	4	3.6
Authentic learning with multimedia applications	3	2.7
Authentic learning practices in medical education	3	2.7
Authentic learning practices in engineering education	2	1.8
Authentic learning in the 21st century	1	0.9
Collaborative authentic learning activities	1	0.9
Authentic learning perceptions of students and parents	1	0.9
Postgraduate students' perspectives on virtual authentic learning	1	0.9
Diversity in authentic learning practices: STEM applications	1	0.9
Values education with authentic learning practices	1	0.9
In-service training with authentic learning practices	1	0.9
Total	111	100

Table 6. Distribution of studies in the field of authentic learning approaches and applications by research method.

Research method	f	%
Qualitative research / case study	28	25.2
Quantitative research / survey study	23	20.7
Mixed Method	16	14.4
Design based research	13	11.7
Quantitative research / experimental study	10	9.0
Compilation study	5	4.5
Qualitative research / phenomenology study	5	4.5
Report study	4	3.6
Design and development study	3	2.7
Modeling study	2	1.8
Design research	1	.9
Scale development work	1	.9
Total	111	100

Distribution of studies in the field of authentic learning approaches and applications by number of sample

As shown in Table 9, when the distribution of publications in the field of authentic learning approaches and applications according to number of sample is examined, it has been determined that the density is above the **"30-59" sample groups** (24 publications and 21.6 percent). The evaluation was made on 102 publications. This is

Table 7. Distribution of studies in the field of authentic learning approaches and applications by education level.

Education level	f	%
University	61	57.1
Primary school	11	10.9
Informal education	9	9.1
Master degree	7	7.3
High school	7	7.3
Primary school-middle school	4	4.6
Middle school	3	3.7
Total	102	100

Table 8. Distribution of studies in the field of authentic learning approaches and applications by sample group.

Sample group	f	%
University students	45	29.5
Teacher candidates	7	6.4
Graduate students	4	5.2
Lecturers	4	5.2
Lecturers and teacher candidates	1	.9
Primary school students	5	6.1
Primary school students and custodian	3	4.8
Primary school teachers	3	4.8
Trainees taking online courses	9	10.6
Master degree students	7	8.4
High school students	6	7.2
High school teachers	1	.9
Primary school-middle school students	4	5.2
Middle school students	3	4.8
Total	102	100

Table 9. Distribution of studies in the field of authentic learning approaches and applications by number of sample.

Number of sample	f	%
1-29	17	15.3
30-59	24	21.6
60-89	18	16.2
90-119	16	14.4
120-159	9	8.1
160-200	4	3.6
200 and more	14	12.6
Total	102	100

Table 10. Distribution of studies in the field of authentic learning approaches and applications by data collection method.

Data collection method	f	%
Interview form	19	18.6
Scale	15	14.4
Achievement test	10	9.2
Survey-interview form	9	8.8
Observation-interview form	8	7.5
Survey	6	7.8
Scale- interview form	6	7.8
Pre- and post-test-scale	6	7.8
Literature review	5	4.1
Observation-interview- document analysis	4	3.9
Recording of the system	3	2.8
Scale-survey	3	2.8
Pre and post test	2	.9
Performance indicators	2	.9
Document analysis	2	.9
Performance indicators-interview	2	.9
Recording of the video	2	.9
Total	104	100

because 9 publications are report study.

Distribution of studies in the field of authentic learning approaches and applications by data collection method

As shown in Table 10, when the distribution of publications in the field of authentic learning approaches and applications according to data collection method is examined, it has been determined that the density is above the **"interview form"** (19 publications and 18.6 percent). The reason for this frequency is that most of the researches are qualitative studies. Interview form is followed by **"scale"** (15 publications and 14.4 percent). The evaluation was made on 104 publications.

Distribution of studies in the field of authentic learning approaches and applications by number of references

When the Table 11 is examined and the distributions according to the number of references are examined, the frequency was determined to be between "**26-50 references"** (65 publications and 58.6 percent).

Table 11. Distribution of studies in the field of authentic learning approaches and applications by number of references.

Number of references	f	%
1-25	17	15.3
26-50	65	58.6
51-100	29	26.1
Total	111	100

Distribution of studies in the field of authentic learning approaches and applications by analysis techniques

As shown in Table 12, when the distribution of publications in the field of authentic learning approaches and applications according to analysis techniques is examined, it has been determined that the density is above the **"content analysis"** (23 publications and 22.7 percent). The reason for this frequency is that most of the researches are qualitative studies. Content analysis form is followed by "**standard deviation and parametric tests"** (20 publications and 20.8 percent). The evaluation was made on 104 publications. It is seen in the table that other analysis types show diversity.

Table 12. Distribution of studies in the field of authentic learning approaches and applications by analysis techniques.

Analysis techniques	f	%
Content analysis	23	22.7
Standard deviation and parametric tests	20	20.8
Descriptive analysis	13	12.4
Content analysis- standard deviation	9	9.0
Parametric tests	8	7.2
Non-parametric tests	8	7.2
Pearson correlation coefficient	6	5.4
Content analysis, parametric tests	5	4.5
Content analysis, non-parametric tests	4	3.6
Exploratory factor analysis	3	2.7
Exploratory factor analysis and confirmatory factor analysis	2	1.8
Spearman Brown correlation coefficient	2	1.8
Confirmatory factor analysis	1	.9
Total	104	100

Distribution of studies in the field of authentic learning approaches and applications by research trends

When the distribution of publications in the field of authentic learning approach and applications according to research trends is examined; **"course design with authentic learning approaches and applications"** draws attention. While other research trends varied, **"online authentic learning apps"** took 2nd place. "Development of language skills with authentic learning", "classroom experiences with authentic learning", "authentic learning with mobile applications" are included in this study as other research trends.

DISCUSSION AND CONCLUSION

The trends in terms of authentic learning approach and applications research throughout the world were examined using 16 criteria: databases, journal name, year of publication, country, institute, number of authors, research area, method, education level, number of sample, data collection method, number of references, analysis techniques, research trends. According to the findings obtained:

When the distributions were examined according to the database, it was seen that the frequency was in "**Springer databases"**. Springer Protocols Database is on trial access until 15 June 2018. Springer is a global publishing company that publishes books, e-books and peer-reviewed journals in the field of science, humanities, technical and medical (STM) publishing. It also hosts a number of scientific databases, including Springer, SpringerLink, and SpringerImages. Springer is followed by **"Scopus and Web of Science"** by percentage. Karasozen et al. (2011), compared Wos and Scopus databases in their research. As a result, when the studies on the subject are evaluated in the literature, it was seen that both databases have superiority in different subject areas in terms of the number of publications and citations.

When the distributions were examined according to the journal name, it was seen that the frequency was in **"Tech Trends"**. This journal is scanned in Springer database. TechTrends' publication topics include education communication and technology. TechTrends journal is followed by **"Computers & Education"** journal, which is also scanned in Springer again. The subject scope of this journal is education and technology. Similar to the results of the research, Computer & Education has draw attention in the studies conducted by Tezer et al.

(2019) in the field of augmented reality environments and applications.

When the distributions were examined according to the publication year, it was seen that the frequency was in **"2020 year"**. Moreover, the presence of publications for Authentic Learning in the first month of **"2021 year"** draws attention. The results obtained from meta-analysis studies in recent years support the increasing speed of research in educational technology in recent years (Yildiz et al., 2019; Yildiz, 2019; Soykan and Uzunboylu, 2015; Keser and Ozcan, 2011; Cheung and Slavin, 2011).

When the distributions were examined according to the publication country, it was seen that the frequency was in **"The U.S.A."**. Studies in this field in The USA made a big difference with other countries as a percentage. Similar to the results of the research, The U.S.A. has draw attention in the studies conducted by Tezer et al (2019) in the field of augmented reality environments and applications. Although America's closest follower is **Australia**. Out of them **Taiwan, Canada** and **Turkey** is also noteworthy another countries in the ranking. Studies show that there are 125 institutions in the United States that offer Educational Technology degrees and courses.

When the distributions were examined according to the university/institute, it was seen that the frequency was in **"National Central University in Taiwan"** and **"ICT" (Information Computer Technology).** In the researches, it has been determined that the National Central University is founded in 1915 a well-established educational institution. It has been observed that the studies conducted in the field of authentic learning approach are preferred by ICT as an institute. The fact that information technology research is based on a educational theory or approach in recent times is a proof of this result.

When the distributions were examined according to the number of authors and number of references, it was seen that the frequency was in **"2 authors"** and **"26-50 references"**. When the findings were compared with other studies in the literature, Tezer et al. found the frequency of 2 authors and the frequency of reference numbers between 1-29 in their study.

When the distributions were examined according to research area, it was seen that the frequency was in **"Development of students' academic success through authentic learning"**. Especially with experimental studies conducted in this field, traditional learning approach and authentic learning approach were compared and student academic achievement were discussed in this context. Development of students' academic success through authentic learning is followed by **"Authentic learning study approach and learning outcomes"**. Learning outcomes are qualifications that express what the student will know, understand or be able to do after the learning process is completed (Yenidogan, 2010). Remarkable detail in the result, the use of authentic learning approaches and applications

not only in education but also in different disciplines such as **"medicine"** and **"engineering"**.

When the distributions were examined according to method/data collection method it was seen that the frequency was in **"Qualitative research / case study" and "interview form"** . When the literature is examined, it is seen that the method criteria of the meta-analysis studies are focused on qualitative and quantitative researches (Goktas et al., 2012; Simsek et al., 2009; Tosuntas et al., 2019). In addition when analysis techniques were examined, it was determined that the frequency belonged to **"content analysis".**

When the distributions were examined according to education level/number of sample method it was seen that the frequency was in **"university"** and **"university students".** When the literature is examined, the presence of authentic learning approaches and applications in the curriculum of higher education draws attention in recent years (Doğanay and Uyar, 2019).

When the latest research criteria research trends are examined**; "course design with authentic learning approaches and applications"** draws attention. While other research trends varied, "online authentic learning apps" took 2nd place. "Development of language skills with authentic learning", "classroom experiences with authentic learning", "authentic learning with mobile applications" are included in this study as other research trends. Accordingly, it was determined that authentic learning approach was used in various course curriculum such as mathematics, science, social studies, foreign language.

SUGGESTIONS

In the study, it was determined that authentic learning approaches and applications are mostly used in higher education. However, authentic learning is an approach that can be utilized for student success at other levels (primary, middle and/or high school) with its different dimensions and contents. In this context, teachers can be encouraged. Another suggestion this study is limited in terms of database and number of publications. More comprehensive and detailed studies can be done in terms of these criteria in the future.

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