

# A Bibliometric Analysis of Studies on Flipped Learning in Accounting Education: The Case of Web of Science

Muhasebe Eğitiminde Ters Yüz Öğrenme ile İlgili Yapılan Çalışmaların Bibliyometrik Analizi: Web of Science Örneği

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## ABSTRACT

With digitalization, various innovations have occurred both in the field of accounting and in educational methods.. One of these methods is the Flipped Classroom method. The flipped classroom method, unlike traditional education methods, is based on the principle that the information about the course is given to the student in an electronic environment before the course.

This study, considered one of the rare examples in the literature where studies on the Flipped Classroom Model in accounting education have been examined using bibliometric analysis methods, aims to examine studies on the application of the flipped classroom model in accounting education and their results, retrieved from the Web of Science (WOS), using bibliometric analysis methods. Web of Science database was used in the study. Bibliometric mapping, one of the bibliometric analysis methods, was used in the study and "VOSviewer" package software program was used. As a result, it was determined that the year in which the most articles on flipped learning in accounting were published was 2022, the country where the articles on the subject were studied the most was Spain, the vast majority of the articles published were written in English, and the journal in which the articles were published the most was Accounting Education. With the findings obtained, it is thought that the resources necessary for studies on flipped learning in accounting can be accessed more easily and effectively.

**JEL Codes:** M40, M41, M49, 120

**Keywords:** Accounting Education, Flipped Classroom Model, Web of Science, Bibliometric Analysis

## ÖZ

Dijitalleşmeyle birlikte hem muhasebe alanında hem de eğitim yöntemlerinde çeşitli yenilikler yaşanmıştır. Bu yöntemlerden biri de ters yüz edilmiş sınıf yöntemidir. Ters yüz edilmiş sınıf yöntemi, geleneksel eğitim yöntemlerinden farklı olarak dersle ilgili bilginin ders öncesinde elektronik bir ortamda öğrenciye verilmesi esasına dayanır. Literatürde, muhasebe eğitiminde Ters Yüz Sınıf Modeli ile ilgili yapılan çalışmaların bibliyometrik analiz yöntemiyle incelendiği nadir örneklerden biri olduğu düşünülen bu çalışmanın amacı, "Web of Science (WOS)"ta taranan ve muhasebe eğitiminde ters yüz sınıf modelinin uygulandığı ve sonuçlarının yer aldığı çalışmaları bibliyometrik analiz yöntemi ile incelemektir. Çalışmada Web of Science veri tabanı kullanılmıştır. Çalışmada bibliyometrik analiz yöntemlerinden bibliyometrik haritalama yapılmış olup "VOSviewer" paket yazılım programı kullanılmıştır. Sonuç olarak muhasebede ters yüz öğrenme konusunda en fazla makalenin yayınlandığı yılın 2022 yılı olduğu, konuyla ilgili makalelerin en fazla çalışıldığı ülkenin İspanya olduğu, yayınlanan makalelerin çok büyük bir çoğunluğunun İngilizce olarak yazıldığı ve makalelerin en fazla yer aldığı derginin Accounting Education olduğu tespit edilmiştir. Edinilen bulgularla muhasebede ters yüz öğrenme konusunda yapılacak çalışmalar için gerekli olan kaynaklara daha kolay ve etkin bir biçimde ulaşılabileceği düşünülmektedir.

**JEL Kodları:** M40, M41, M49, 120

**Anahtar Kelimeler:** Muhasebe Eğitimi, Ters Yüz Edilmiş Sınıf Modeli, Web of Science, Bibliyometrik Analiz

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## Introduction

Traditional education methods have become uninteresting for learners who have the opportunity to access information at any time. With the rapid development of technology in developed countries, different learning methods have started to be preferred to increase the quality of education (Hao & Xuqin, 2015, p. 1303). Developments in information technologies and the digitalized world have brought innovations in education and training models. The flipped classroom method, which has been very popular in recent years, is one of them. Traditional education methods are no longer interesting for learners who have access to information at any time. The flipped classroom model, which emerged as a result of a pedagogical approach, is an educational model that encourages active learning based on students' self-study of lessons outside of class hours and the application of course materials in the classroom with teacher support (Chen, 2025, p. 3). The flipped learning method, which is popular in Western countries and was first introduced by the American Salman Khan, is a method in which the instructor guides the student, eliminates the boundaries of the classroom or school, brings activities outside the classroom into the classroom and those inside the classroom outside the classroom, and ensures the individuality of teaching (Kurt et al., 2022, p. 351). The flipped classroom uses technology to offer alternatives such as video lessons that students can easily download and watch before class to learn the material. During class, the information students learned from the video lesson at home is transferred to the classroom environment with the help of the instructor, encouraging them to actively participate in classroom activities such as question-and-answer sessions, case studies, and brainstorming to contribute further (Kottara, 2025, p. 196). In the flipped education model, when the instructor enters the classroom, he/she videotapes especially the theoretical part of the subject he/she will explain and transfers it to a place where students can access it whenever they want. The student watches the video at any time and place he/she wishes and comes to class at the time of the lesson having done the homework assigned by the instructor. Thus, the student has the opportunity to watch the lesson whenever and wherever he/she wants and can re-watch the parts he/she does not understand. Concentration breakdowns due to the large number of students in the classroom are minimized. In the education realized with the flipped classroom model, the instructor can design assignments by having group work. In other words, in this

method, lessons and assignments are switched. The student gets the opportunity to practice more by learning the subject outside the classroom (Serçemeli, 2016, p. 116).

The aim of this study is to examine, using bibliometric analysis, studies published in Web of Science (WOS) that apply the flipped classroom model in accounting education and present their results. To this end, the introduction section provides a general conceptual framework, followed by a literature review in the first chapter. In the second chapter of the study, articles published in Web of Science on the topic of "Flipped Learning in Accounting Education" were examined using bibliometric mapping techniques within the scope of bibliometric analysis.

### The Flipped Classroom Model in Accounting Education

To keep pace with changes in technology, economics, laws, and social and political life, accounting education must continuously update its course content, teaching methods and techniques, and teaching tools and equipment in a manner appropriate to these changes. In addition, for professionals to adapt to changing conditions and contribute to their development in the field of accounting, they must participate in continuous in-service training and be aware of the need to interpret and generate solutions beyond the function of record keeping, and to possess the skills to use information and communication technologies (Tuğay & Ömürbek, 2014, p.72). In addition, with the increasing use of information and technology, the expectations of individuals in the accounting industry have also changed (Ahadiat, 2003, p. 174). For accounting education to be successful, students must be able to apply the theoretical knowledge they have learned about accounting in practice (Kurnaz & Ağgöl, 2018, p. 333). This means that the implementation of flipped learning in accounting education will contribute to the field of accounting. Lubbe (2016), who examined the flipped classroom method for the Financial Accounting course, looked at how students taking the course understood the accounting course and how they managed their class time, and concluded that students were more proficient in the flipped learning method (Kurt et al., 2022, p. 353).

### Literature Review

Although there are numerous studies in the literature that address the flipped classroom model in accounting education, there are no studies that address this topic

within a bibliometric framework.

There are many studies on the flipped learning model in the literature. In addition, there are many studies examining flipped learning with bibliometric analysis methods in the field of accounting education as well as in many fields such as chemistry education, mathematics education, science education. However, there are not many studies that specifically examine the flipped learning model in accounting education by bibliometric analysis method. Some sample studies in the literature on the subject and their results are given below.

In 2013, Sonic Foundry and Center for Digital Education (CDE) surveyed 309 higher education faculty members about the flipped learning model and concluded that 56% of the respondents have implemented or plan to implement the flipped learning model. They also found that those who had used the flipped learning model generally rated the experience positively, with 57% rating their implementation as successful or extremely successful, and 83% reporting a positive change in their attitudes towards teaching since the flipped classroom. In terms of student performance and perceptions, more than 80% of educators reported improvements in knowledge acquisition, knowledge retention and student attitudes after the flipped classroom.

Amin et al. (2025) conducted a bibliometric analysis to determine the impact of digitalization on the accounting profession and education and concluded that the leading journal is the Accounting Education journal and that the USA and Australia are the leaders in the total number of citations.

Handoyo (2024) conducted an in-depth study of the changes in accounting education in response to rapid technological developments by using bibliometric method, revealing the dichotomy between the practical and theoretical aspects of accounting education, emphasizing the balance between technological skills and basic knowledge.

Hu and colleagues' (2025) study examined global issues in accounting education, publication trends, key topics, and major contributors in the field through a bibliometric analysis covering the period from 1960 to 2023. As a result, there was a geographical concentration in the United States, the United Kingdom, and Australia, with Hassell from the United States recognized as the most influential author and Taylor & Francis' "Accounting Education" emerging as the most productive journal. Bui and Porter's

2020 work was identified as the most frequently cited publication, highlighting that future research areas should focus on themes such as curriculum, learning, and skills, emphasizing the need for students to concentrate on higher education and their profession.

Baharom and Abdullah (2024) conducted a bibliometric analysis to understand the research patterns, trends, source titles, authors, institutions and research themes of accounting education and found that there has been a significant growth in accounting education research over the last three decades. They also found that the most cited articles were those on managerial accounting and that accounting education is adapting to 21st century challenges.

Tahar et al. (2025), in their bibliometric study of research trends and teaching innovations in accounting education with the evolution of technology, revealed significant trends in the adoption and integration of digital tools such as artificial intelligence, data analytics and cloud computing into accounting education.

Koç and Karabınar (2020) conducted a study to reveal the current state of international scientific research in the field of accounting education and to calculate Türkiye's position among these studies. They found that there were 21 publications from Türkiye, which placed Türkiye above the average. Additionally, they concluded that the most cited publications were studies on ethics in accounting education.

## Research Method

In this study, the development and trend of the articles scanned in "Web Of Science (WOS)" and published on the subject of "Flipped Learning in Accounting Education" between 2014-2024 were analyzed by "Bibliometric Analysis Method".

Bibliometric analysis, which is a popular method used to analyze a large number of scientific data, is a method that quantitatively analyzes certain aspects of publications such as subject, journal, number of authors, and publication information. Examining the studies on a branch of science with bibliometric analysis technique plays an important role in evaluating the performance of the branch of science in question and seeing its development in terms of quality and quantity (Çil Koçyiğit et al., 2023, p. 246). In addition, bibliometric analysis techniques enable the identification and comprehensive analysis of fundamental research trends, enhancing the depth and breadth of literature studies while facilitating the

systematic and meticulous investigation of academic fields (Topal, 2024, p. 2400). The main advantage of bibliometric analysis is that it provides an overall profile of a research area, which is very useful in identifying the most effective research and identifying the main trends over time (Merigo & Yang, 2017, p. 72).

In this study, a total of 3853 studies were found in the WOS database with the search command created with the keywords "Accounting Education\*" OR "Accounting AND Flipped Classroom\*" OR "Inverted Classroom\*" OR "Flipped Learning\*" OR "Reverse Teaching\*" OR

"Backwards Classroom\*" OR "Flipped Instruction\*", and a total of 739 articles published in open access and published in English between 2014-2024 were analyzed within the scope of the research.

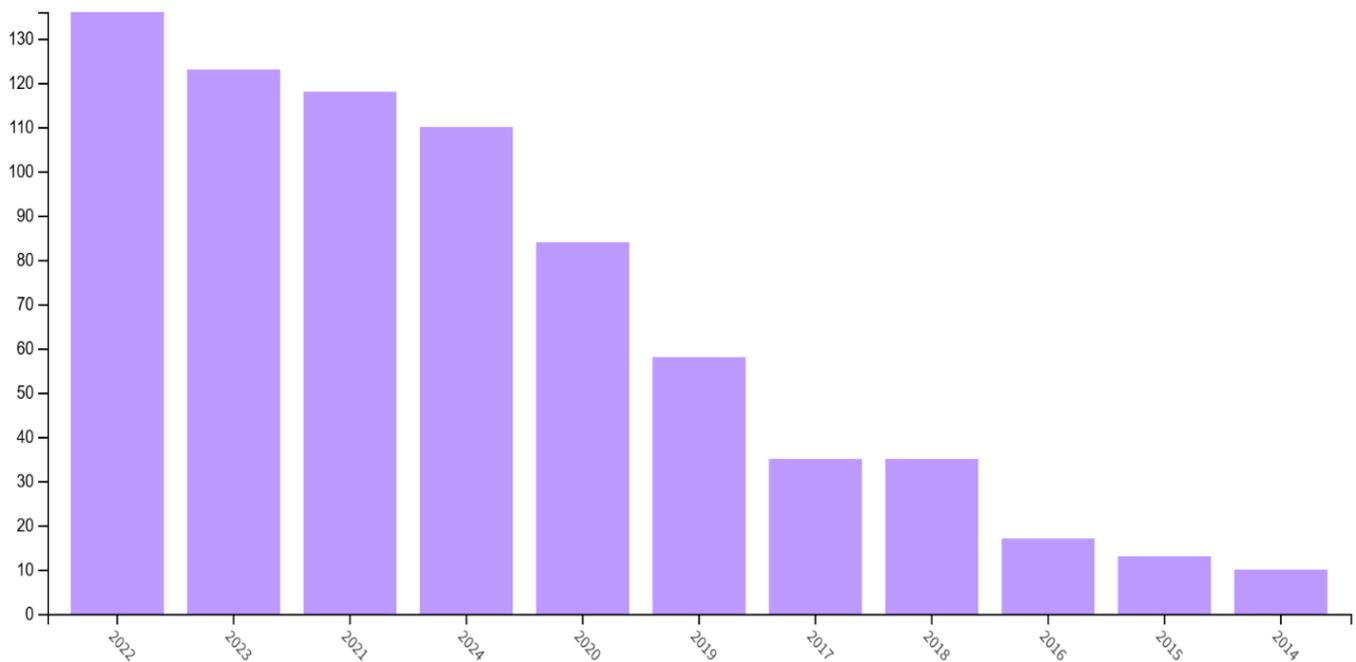
### Web of Science Database Analysis Findings

#### Analysis of Articles by Year of Publication

The distribution of the number of articles by years is presented in Chart 1.

**Chart 1.**

*Distribution of Articles by Years*

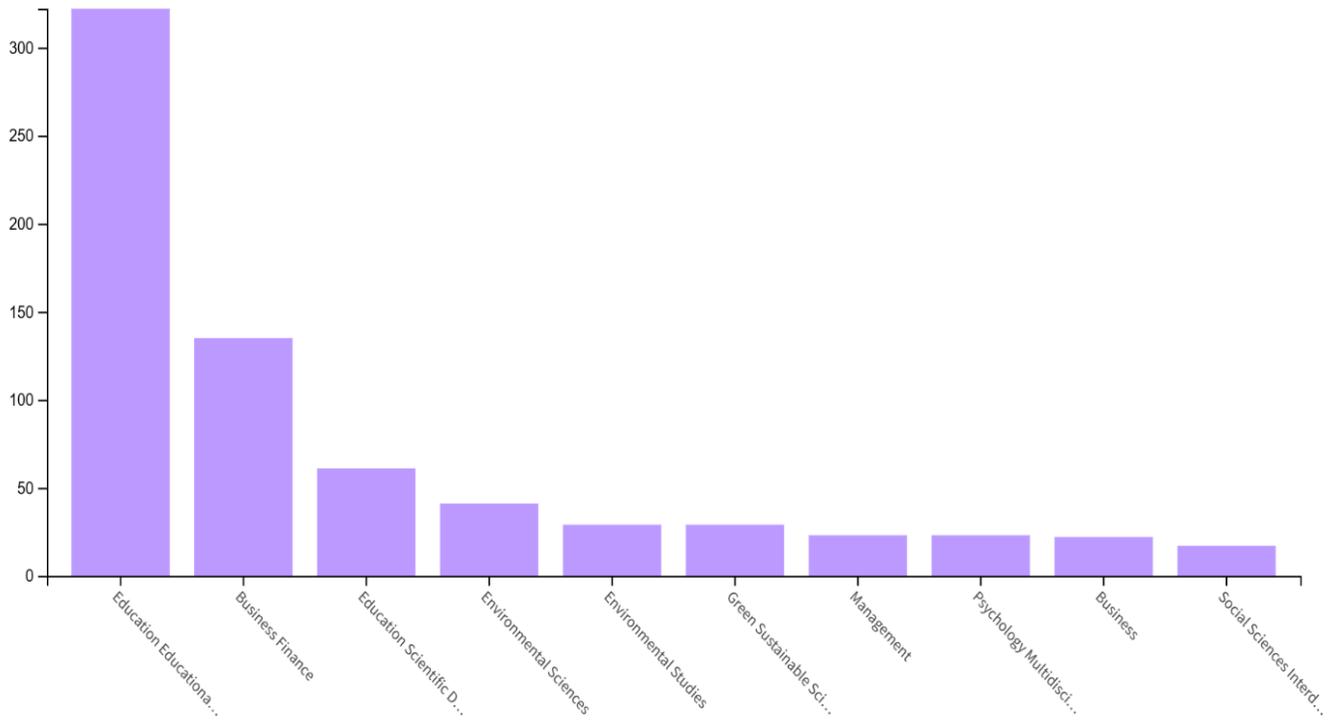


As can be seen in Chart 1, the year in which the most articles on "Flipped Learning in Accounting Education" were published is 2022. This was followed by the year 2023 in second place. The year in which the fewest articles were published was 2014.

#### Analysis of Articles According to Subject Categories

The analysis of the articles published in WOs according to the subject categories of their journals is presented in Chart 2.

**Chart 2.**  
*Distribution of Articles by Subject Categories*

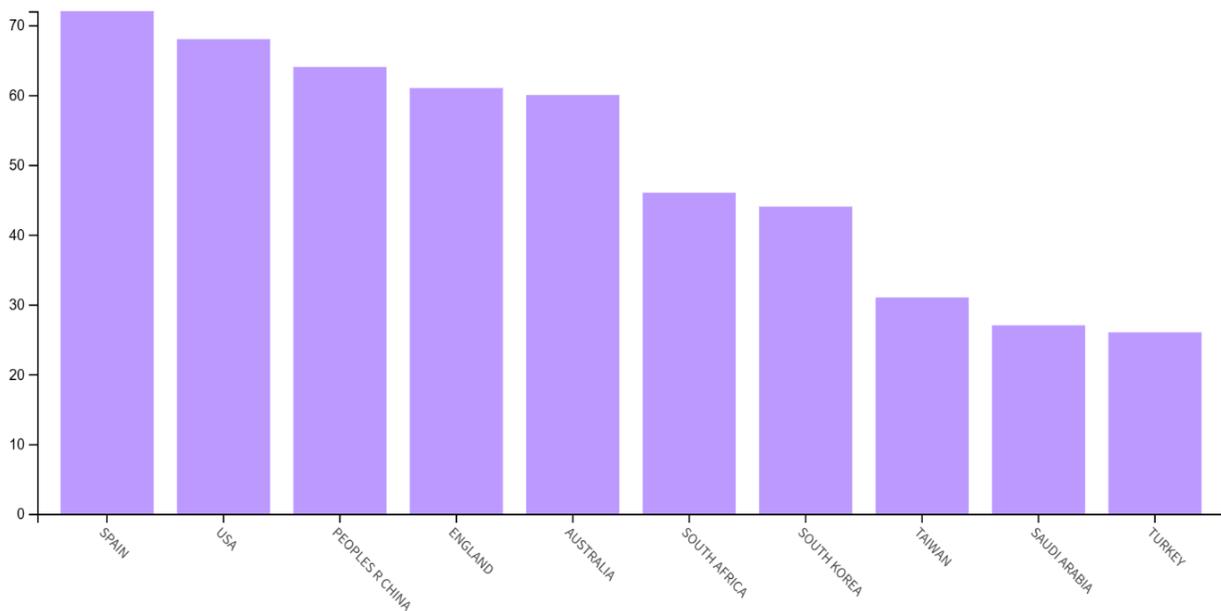


As can be seen in Chart 2, the majority of the journals are related to the subject of "Education Educational Research" and most articles were published in the journal that publishes on this subject. This was followed by the "Business Finance" category in second place.

#### **Analysis of Articles by Country**

The top 10 countries contributing the most in terms of publications on the subject in WOS are presented in Chart 3.

**Chart 3.**  
*Distribution of Articles by Country*

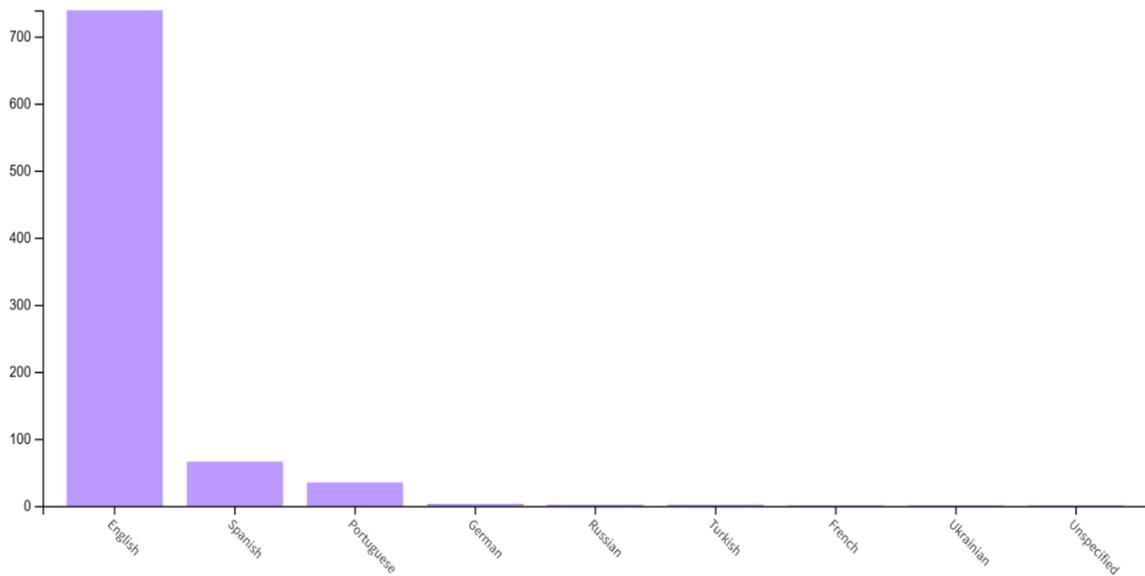


As can be seen in Chart 3, the country with the highest number of articles published on the subject is Spain. The United States of America followed in second place. Although Türkiye is among the top 10 countries, it ranks tenth among them.

### Analysis of Articles by Language of Publication

The distribution of articles published on the subject in WOS according to publication languages is presented in Chart 4.

**Chart 4.**  
*Distribution of Articles According to Publication Languages*

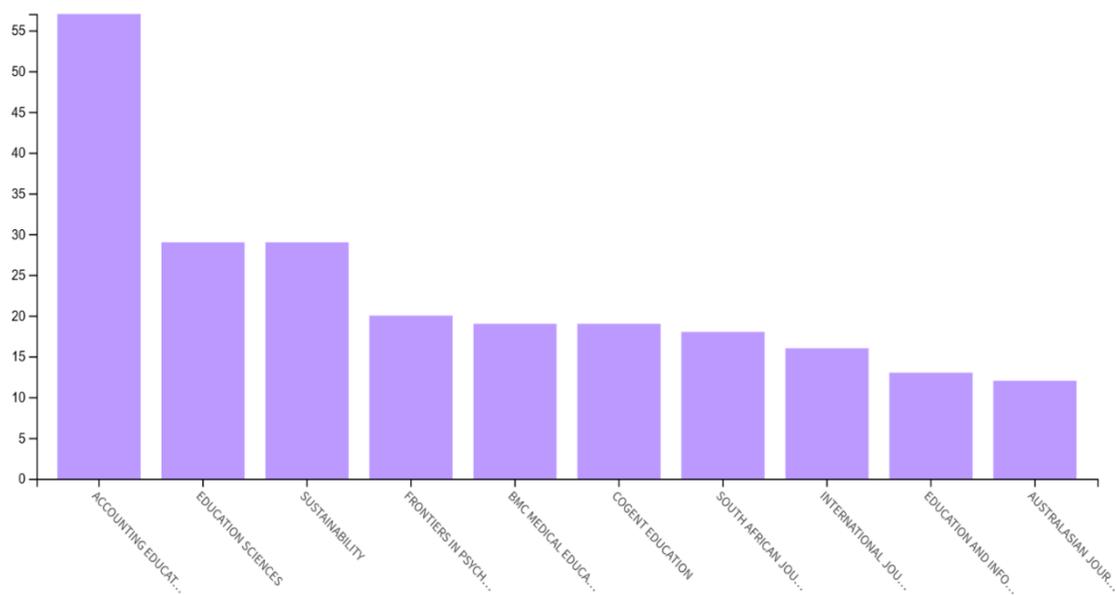


As can be seen in Chart 4, since a significant majority of the articles were published in English, only articles in English were included in the bibliometric analysis.

### Analysis of Articles According to Source Titles

The distribution of articles published in WOS according to their source titles (journals) is presented in Chart 5.

**Chart 5.**  
*Distribution of Articles by Source Titles*

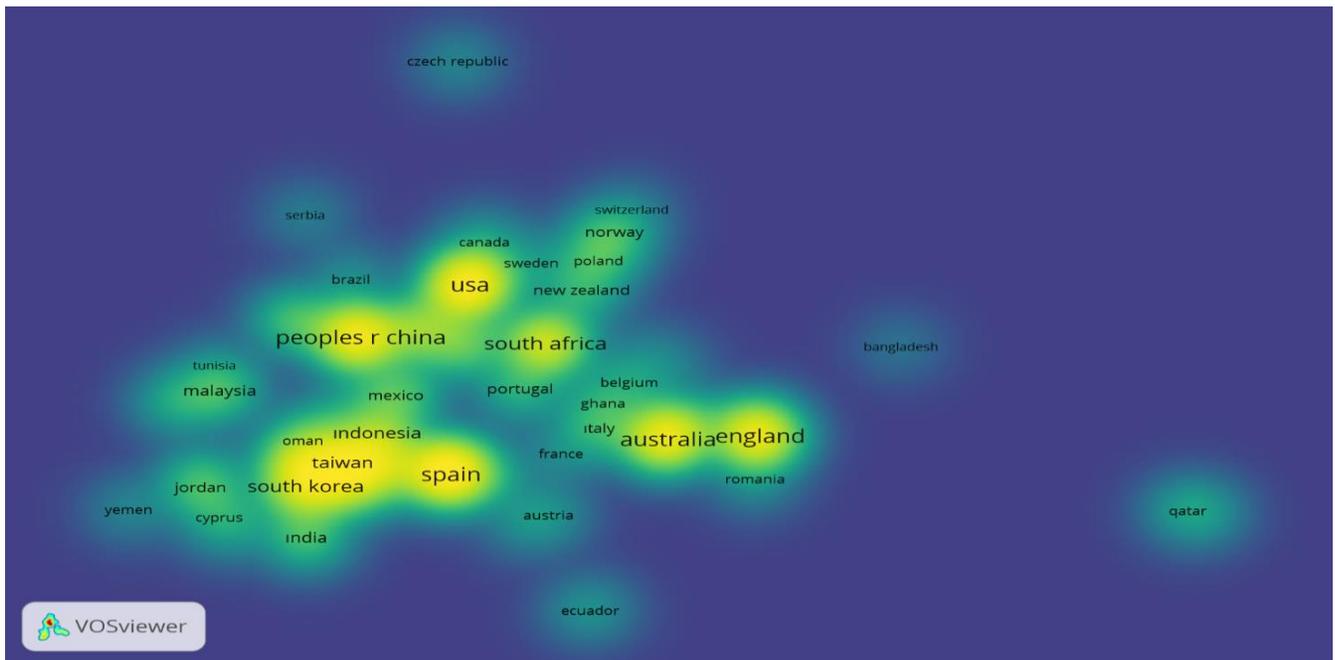








**Figure 6.**  
*Citation Intensity Map of Countries*



Looking at the network and density maps; *USA* is the country with the highest number of citations (1445 citations in 68 articles) and *England* is the country with the highest total connection strength.

#### Citation analysis by authors

A total of 2441 authors on the subject were found through citation analysis. Among these authors, 153 authors with at least 2 citations and 89 authors with the highest total link strength among these authors were included in the analysis and network and density maps were created.

**Figure 7.**  
*Authors' Citation Network Map*









the highest total link strength. The keyword with the highest frequency of repetition was *flipped learning* (212). Again, it was determined that the keyword with the highest total link strength was *flipped learning*.

The most important limitation of this study is that only the studies scanned in a single database and only the studies that are articles are analyzed within the scope of the analysis. It is recommended that future studies should also include bibliographic matching and co-author analysis. In addition, in future studies, it is recommended that different types of publications such as book chapters, papers, etc. published in other databases such as Google Scholar, Scopus, Science Direct, ScienceOpen, PubMed, etc. other than the WOS database be included in the analysis. It is thought that the outputs of this study can be used in studies on flipped learning in accounting education according to bibliometric indicators. In this way, it will be possible to find studies in the literature according to the basic indicators used in this study.

**Hakem Değerlendirmesi:** Dış bağımsız.

**Çıkar Çatışması:** Yazar, çıkar çatışması olmadığını beyan etmiştir.

**Finansal Destek:** Yazar, bu çalışma için finansal destek almadığını beyan etmiştir.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** The author has no conflicts of interest to declare.

**Financial Disclosure:** The author declared that this study has received no financial support.

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## Genişletilmiş Özet

**Amaç:** Bu çalışmanın amacı, "Web of Science (WOS)"ta taranan ve muhasebe eğitiminde ters yüz sınıf modelinin uygulandığı ve sonuçlarının yer aldığı çalışmaları bibliyometrik analiz yöntemi ile incelemektir. Böylece konu ile ilgili çalışma yapacak olanların muhasebede ters yüz öğrenme konusunda öne çıkan çalışmalara daha kolay ve hızlı ulaşabilmelerini sağlamaktır.

**Yöntem:** Çalışmada bibliyometrik analiz yöntemlerinden bibliyometrik haritalama yapılmış olup "VOSviewer" paket yazılım programı kullanılmış ve veri haritalandırılması gerçekleştirilmiştir. WOS veri tabanında "Accounting Education\*" OR "Accounting AND Flipped Classroom\*" OR "Inverted Classroom\*" OR "Flipped Learning\*" OR "Reverse Teaching\*" OR "Backwards Classroom\*" OR "Flipped Instruction\*" anahtar kelimeleri ile oluşturulan arama komutu ile yapılan taramada toplam 3853 çalışma çıkmış olup 2014-2024 yılları arasında açık erişimde olan ve İngilizce olarak yayınlanan toplam 739 makale araştırma kapsamında analiz edilmiştir. Ulaşılan 739 makale görsel haritalama yöntemi kullanılarak atıf analizi ve anahtar kelime tekrar sıklığı analizi olmak üzere 2 ana başlık altında incelenmiştir.

**Bulgular:** Muhasebede ters yüz öğrenme konusunda en fazla makalenin yayınlandığı yılın 2022 yılı olduğu, konuyla ilgili makalelerin en fazla çalışıldığı ülkenin İspanya olduğu, yayınlanan makalelerin çok büyük bir çoğunluğunun İngilizce olarak yazıldığı ve makalelerin en fazla yer aldığı derginin Accounting Education olduğu tespit edilmiştir.

**Sonuç ve Öneriler:** Gelecek çalışmalara bibliyografik eşleştirme, ortak yazar gibi analizlerin de yapılması önerilmektedir. Ayrıca gelecekte yapılacak çalışmalarda, WOS veri tabanı dışında diğer veri tabanlarında yayınlanmış kitap bölümü, bildiri v.b. farklı yayın türlerinin de analize dahil edilmesi önerilmektedir. Bu çalışmanın çıktılarının bibliyometrik göstergelere göre muhasebe eğitiminde ters yüz öğrenme konusundaki çalışmalarda kullanılabileceği düşünülmektedir. Bu sayede bu çalışmada kullanılan temel göstergelere göre alanyazınındaki araştırmaları bulmak mümkün olabilecektir.