



History of the Flipped Classroom Model and Uses of the Flipped Classroom Concept

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Keywords

Flipped classroom
Flipped classroom history
Inverted classroom
Reverse classroom

Article Info:

Received : 20-09-2021
Accepted : 05-04-2022
Published : 18-06-2022

DOI:

10.31704/ijocis.2022.004

Abstract

Flipped Classroom (FC) Model is an approach based on learning the simple and theoretical parts of a subject in extracurricular time through educational technologies and performing higher-level studies during class time. With the development and spread of educational technologies, the interest in the FC Model has increased. In the present study, we aimed to reveal the historical development of the FC Model, which is a current teaching model, and what kind of uses it has as a concept. The findings, which were put forward in line with this purpose, were reached by the document analysis method. With reference to the results of the research, although the ideas and practices that paved the way for the emergence of the FC Model are older, it could be said that the approach was expressed as a concept in its present form in 2000. In addition, it was revealed that the interest in the FC Model continued to increase over the years and it was expressed with several concepts. As a result of the investigation, it was determined that flipped classroom was the one used most among these concepts. Based on the results of the study, certain suggestions were made. It is expected that this research will contribute to the field in terms of revealing the historical development of the FC Model and the concepts in which the concept of FC is used in the literature.

To cite this article: Ağırman, N., & Ercoşkun, M. H. (2022). History of the flipped classroom model and uses of the flipped classroom concept. *International Journal of Curriculum and Instructional Studies*, 12(1), 71-88. doi: 10.31704/ijocis.2022.004

Introduction

Developing technology affects educational activities as it does in many areas of human life. In many parts of the world, educators try and propose new ideas and practices in order to carry out effective teaching activities in line with changing conditions and needs. Thanks to the developments in educational technologies, one of the procedures that educators have put

forward in recent years is the Flipped Classroom Model (FC Model). The FC Model is accepted as one of the blended learning models (Hayırsever & Orhan, 2018; Horn & Staker, 2014), which is expressed as the combination of online and face-to-face education (Graham, 2006).

FC Model is an approach based on learning the simple and theoretical parts of a subject in out-of-class time with the help of educational technologies and performing higher-level studies in the classroom (Baker, 2000; Bergmann & Sams, 2012). The FC Model can be called a reversal of the traditional teaching process because while the traditional understanding is that the teacher lectures in the classroom and then gives homework, the FC Model follows the lectures out-of-class time. It is based on doing the practices which can be homework in the classroom (Abeysekera & Dawson, 2015).

In the FC Model, students come to the classroom by learning the subject before the lesson, through online material (for example, video) containing the simple and theoretical parts of the subject. The teacher makes in-depth discussions, experiments, and activities such as problem-solving activities with students who come to the classroom knowing the subject to a great extent (Baker, 2000; Lage, Platt, & Treglia, 2000). In the FC Model, which generally proceeds in this way, the aim is to devote the course time to more qualified educational activities by eliminating the processes that do not need to be spent together with the teacher, because within the scope of the lessons, there are subjects that are appropriate for individual learning, and which can be comprehended by watching a video, listening to an audio recording or reading from a book. It was considered unnecessary to waste time in the classroom with these subjects and the idea that the lesson could start at home was adopted (Lage et al., 2000; Zownorega, 2013). Thus, both teachers and students have the opportunity to use the classroom environment more effectively. Therefore, the FC Model makes room for collaborative and interactive activities and studies that will allow the realization of high-level goals according to Bloom's taxonomy (Anderson & Krathwohl, 2001) by taking the simple parts of the subject out of the classroom. Moreover, all these are done without compromising the learning outcomes and content of the course (Baker, 2000).

The emergence of the FC Model, which is a current teaching model, has been in a process. Although it is accepted in the literature that Jonathan Bergmann and Aaron Sams, who taught chemistry at a high school in the USA in 2007, had an impact on the recognition of the model (Bates, Almekdash, & Gilchrest-Dunnam, 2017; Tucker, 2011). It is known that the expression of ideas and concepts that paved the way for the emergence of the FC Model dates back to earlier times (Baker, 2000). With the historical development of the model, the concept of FC has been expressed in different ways over the years. It is very important to know the historical development of the FC Model and whether there are different uses of the concept of FC and what they are, especially when scanning the literature on the subject. When the relevant literature is examined, only one source directly dealing with the history of the FC Model has been encountered (Bates, Almekdash, & Gilchrest-Dunnam, 2017). However, no comprehensive research has been encountered related to the usages they include as a concept. In the literature, it has been seen that researchers working on the subject briefly talk about these issues when they give information about the model (Carlisle, 2018; Hayırsever & Orhan, 2018; Little, 2015; Temizyürek & Ünlü, 2015). Therefore, we note that researchers who want to learn about the historical development of the FC Model and the uses of the FC concept should carefully examine the literature. For this reason, there is a need for research that comprehensively reveals the process of the FC Model from its emergence to the present and

the concepts which have been expressed in the meantime. It is expected that this research will shed light on the field in terms of revealing the historical development of the FC Model and the concepts used in the context of FC in literature, and it will contribute especially to the researchers who aim to work on this subject.

Purpose of the Research

The main purpose of this research is to reveal the historical development of the FC Model, and which concepts used in the context of FC in literature, and to make an evaluation and suggestions based on the results obtained. In this context, answers to the following questions were sought:

- How has the historical development of the FC Model been?
- What are the different uses of the FC concept in the literature?
- What is the frequency of use of FC concepts in the literature?

Method

Research Methods and Data Collection Process

In this study, document analysis method was employed. Document analysis is a qualitative research method in which printed and/or electronic documents containing information about the research subject are reviewed and evaluated with a systematic procedure (Bowen, 2009; Gross, 2018). The documents examined in this study were reached by scanning on the internet.

In the document analysis carried out to reveal the historical development of the FC Model, the following procedure was followed: The process started with the initial search on the web as *flipped classroom*. For this purpose, every document reached in the literature search provided access to other documents. A wide range of books and articles on the subject were overviewed. Retrieved data were analyzed key to priority status and evaluated chronologically and the results were presented.

The following procedure was followed in the document analysis to determine the uses of the concept of FC in the literature and which of these uses is/are more common: Articles in the Web of Science Core Collection, Education Resources Information Center (ERIC), Scopus and Science Direct databases were searched in order to determine the documents to be examined. The reason for choosing these databases is that they are databases of peer-reviewed journals on education in the international arena. In these databases, the concepts of FC and inverted classroom were the ones scanned first without quotation marks. The search was carried out in English between the years 2000-2021 over the article titles, abstracts, and keywords. The reason for choosing the year 2000 as the starting point to screen was that it was the year in which the concept of FC began to be expressed as a concept. Year range was identified to represent the time beginning from the date of the first use of the concept to the present day is included. Every different use that appeared in each scan was further screened with the same criteria again. Thus, every concept used to express the concept of FC was used as a medium to reach new concepts. In this way, different concepts used to express the concept of FC were identified. Scanning was ended when the data reached saturation.

After the concepts used to express FC were identified, a second scan was conducted to determine the most used ones. Each detected concept was scanned one by one by placing quotation marks in the Web of Science Core Collection database on August 28, 2021. The

search was carried out on the chapters (title, abstract, author keywords, and keywords plus) for the English articles between the years 2000-2021. The findings and results reached within the scope of the research are presented under the heading the results including the historical development of the FC Model, the uses of the FC concept, and the frequency of use of these concepts.

Validity and Reliability

It is very important to include reliable documents in the research to ensure validity and reliability in the document analysis method. Since documents such as books, graduate theses and published articles are reviewed by experts in their fields, they are accepted as valid and reliable data sources (Yıldırım & Şimşek, 2018). In this context, books and articles related to the subject were examined during the research process. In particular, the articles examined were determined by scanning the databases of refereed journals related to education in the international arena, especially the SSCI. In qualitative research, the detailed explanation of how the researcher gathers the data and arrives at the results is another important criterion of validity and reliability (Yıldırım & Şimşek, 2018). In particular, determining the protocol followed in document analysis studies is important to ensure the verifiability of the results (Bowen, 2009). In this context, it was aimed to increase the validity and reliability of the research by giving detailed information about the research process. The types of documents examined in the research, where and how they were accessed were explained in detail. When necessary, the reliability of the research results was aimed to be ensured by giving the link addresses of the direct scan results.

Limitations

In this research, the results of the use of the FC concept in the literature are limited to the documents obtained from the search made with Web of Science Core Collection, ERIC, Scopus, and Science Direct databases, English language, and article publication type. The results on identifying the most commonly used concept to express FC are limited to the documents reached on article publication type, and chapters (title, abstract, author keywords, and keywords plus) search on Web of Science Core Collection database, years 2000-2021, in English language. The fact that the literature review on the subject that it is carried out in different languages, types of publications, scanning areas, and that covers after 2021 may change the results.

Results

Historical Development of the FC Model

The ideas that paved the way for the emergence of the FC Model, which has a history of about twenty years, are older. In her study titled *From Sage on the Stage to Guide on the Side*, published in 1993, Alison King stated that academics in universities were almost a figure in the center of the classroom, that they conveyed their knowledge and taught their lessons without even making the students think too much about the subject. She called it the Transmittal Model. With her concept, she tried to express that the teacher was only the transmitter of knowledge. However, with reference to the constructivist approach, she emphasized that knowledge should be created by the individual, a new perspective, knowledge, product, way, and method should be put forward based on the knowledge at hand, and that in order to do this, the role of the teacher should change from being the wise person in the center of the class

and become a guide accompanying the process. In the literature, although this study of King (1993) does not directly express the concept of FC, it is accepted that it forms a serious background for him.

After King (1993), Eric Mazur, a professor at Harvard University in 1997, developed the peer teaching strategy entitled Peer Instruction. After knowing the basic concepts, this strategy, in which the lesson was conducted through peer teaching, played an important role in the development of the concepts affecting the FC Model (Crouch & Mazur, 2001).

It was the year 2000 in which the FC Model began to be expressed as a concept. There were two studies published on the subject in the same year. At the University of Cedarville, Dr. J. Wesley Baker, in 2000, emphasized the need for a model that connected pedagogy and technology, based on the change in educational philosophy and innovations in technology. He explained the purposes of this model, which he called *Classroom Flip*, as follows (Baker, 2000):

- To carry the factual and conceptual part of the lesson out of the classroom in order to be able to practice active learning strategies in the lesson.
- To give students more control over their own learning.
- To provide students with more opportunities to learn from their peers.
- Transform the duty of faculties from being an information center to a guide.

In the same year, University of Miami academicians Maureen J. Lage, Glenn J. Platt, and Michael Treglia used the FC Model in order to meet the needs of students with different learning styles and not having enough class hours for comprehensive course content. They carried out the procedure they referred to as *Inverted Classroom* as follows (Lage et al., 2000, p. 32-34):

The topics of the course were divided to be consistent with the course hours. FC Model was applied with 75-minute lessons twice a week. During the application, the students were asked to read the relevant part in the Microeconomics books before coming to the lesson. In addition, they were encouraged to watch the videos of the lecturers prepared by the lecturers or to listen to the PowerPoint presentations voiced by these lecturers. Access to course content was provided in several different ways. It was ensured that students could watch these recordings over the internet in the laboratories of the university or they could take the recordings and watch them at home if they wished. In addition, before the lesson, students were asked to prepare for worksheets with activities and questions consisting of basic content. The questions in these worksheets were examined through group discussion in the classroom, and the answers were checked. The lecturer started the lesson by asking the students who studied the subject in different resources whether they had questions that they could not answer confidently or could not understand and whether they wanted additional examples related to the subject. The students were informed in advance that if they did not have questions or requests, the instructor would act as if the subject was understood very well. After the questions were answered, an economic experiment was conducted on the subject. The lesson was carried out in more detail through the activity of putting a can of coke up for sale at auction. Worksheets with questions that require higher-level practice were prepared by the students during the course. Finally, if there were any questions, they were answered and the lesson was concluded. Considering that students' responsibilities increased thanks to this activity, additional materials, course videos, presentations, and former exams were shared on the course page in order to help them.

Although the developed model was highly accepted by students and instructors, this first application, which was planned in such a detailed and rich way in the early 2000s, did not receive the expected attention. The widespread use of the FC Model took place approximately seven years after the applications of Baker (2000) and Lage et al. (2000). Jonathan Bergmann and Aaron Sams, who were chemistry teachers at Woodland Park High School in the USA in 2007, shared the PowerPoint presentations they used in the lesson and the videos they took while teaching the lesson on the internet in order to convey the lesson in full detail to those students when they could not come to the lesson for various reasons. Later, when they realized that it had some advantages over traditional teaching, they thought that this model could be applied to all students, not just those who could not attend the course. One of the advantages Bergmann and Sams (2012) noticed was that students whose academic level in the lesson was under the average of the class had the opportunity to stop the teacher in the video at their own pace, take notes and listen again whenever they wanted. The FC Model, which had similar positive results, has attracted the attention of teachers and academics in a short time thanks to the videos Bergmann and Sams (2012) put on the internet. In the following years, Bergmann and Sams published several books about the FC Model. Following their first book published in 2012 (Bergmann & Sams, 2012), it can be said that they contributed to the shining out of the model through the books they published on its use in different educational levels and disciplines (Bergmann & Sams, 2015b; Bergmann & Sams, 2015c; Bergmann & Sams, 2015d; Bergmann & Sams, 2015e).

The emergence process of the FC Model is summarized in Figure 1.

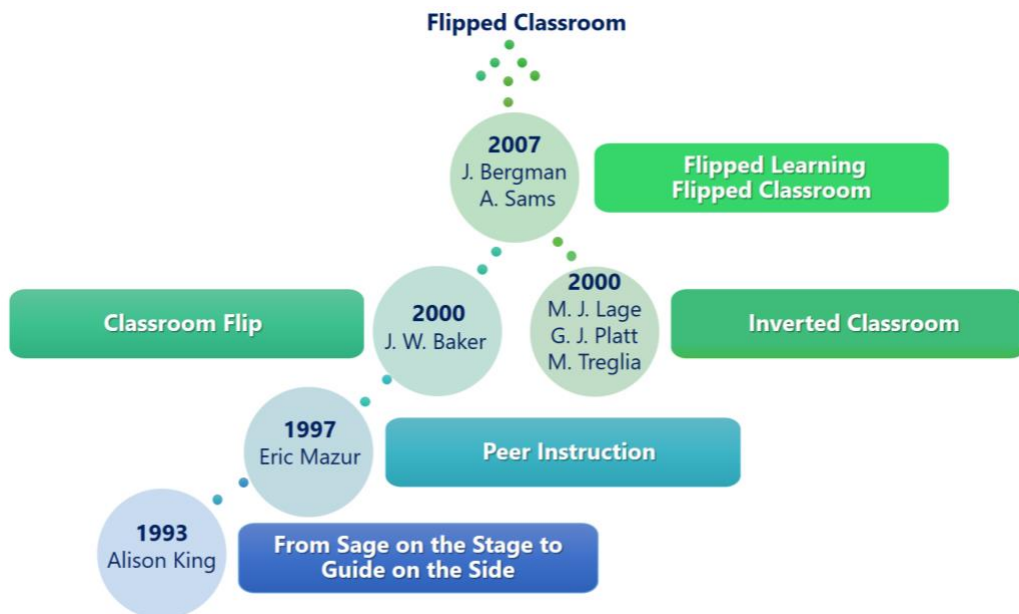


Figure 1. *The Emergence Process of the FC Model*

Research on the application of the FC Model at different levels of education and within the scope of different courses has gradually been increasing (Graham, 2006). In addition, certain schools have started teaching through this model or use the FC Model in their teaching activities. For example, MEF University in Turkey states that it is the first university in the world that teaches with the full FC Model. The aforementioned university had its first graduates in 2018, who studied with this model in all its programs (Şahin, Fell Kurban, & Mazur, 2019).

The FC Model has been a recommended model to be combined with online learning in order to increase the efficiency in distance education in cases where face-to-face education cannot be performed, such as the Coronavirus (Covid-19) pandemic, which started in China in 2019 and affected the whole world (Bozkurt, 2020). In summary, it can be said that the use of the FC Model continues to become widespread, even during the periods when face-to-face education is not available.

A literature review was conducted in order to reveal the distribution of research on the FC Model over the years. Based on the findings in Table 2, since the most commonly used concept is FC, the Web of Science Core Collection database was scanned with the concept of FC on September 6, 2021, in quotation marks. The search was carried out on the chapters (title, abstract, author keywords, and keywords plus) for the English articles between the years 2000-2021. The result obtained is given in Figure 1.

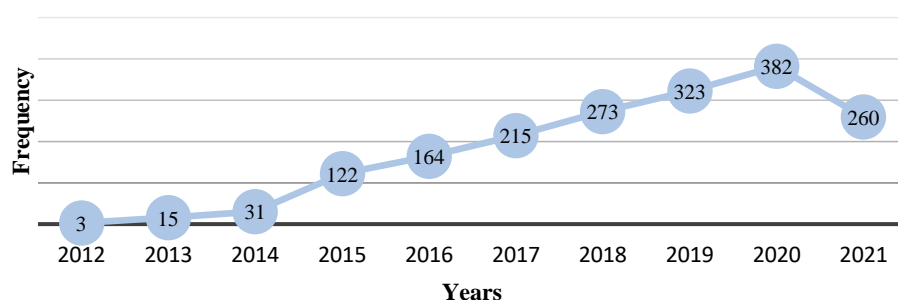


Figure 2. *Distribution of Articles on FC in the Web of Science Core Collection by Years*

The distribution of articles on FC by years is shown in Figure 2. The first article meeting the screening criteria in this database was published in 2012 and the number of studies has increased continuously since then. Based on this result, it could be said that the interest in the FC Model continues to increase steadily.

The increase in research on the subject has brought about different uses of FC as a concept. From the emergence of FC until today, the findings obtained from the research conducted to determine what kind of uses of the FC concept have been presented under the title of Uses of the FC Concept.

Uses of the FC Concept

Over the years, different expressions have been used in the literature to express the FC Model. As a result of the literature review, it was determined that the concepts in Table 1 were used to express the FC Model.

Table 1. *Uses of the FC Concept*

Concept	Sample Publication
Flipped Classroom	(Pierce & Fox, 2012)
Flip Classroom	(Li, Zhang, & Hu, 2018)
Flipping Classroom	(Wang, Jou, Lv, & Huang, 2018).
Flipped Class	(Wilson, 2013)
Classroom Flip	(Baker, 2000)
Flipped Learning	(Seery, 2015)
Flipped Approach	(Croy, Garvey, Willetts, Wheelahan, & Hood, 2020).
Flipped Pedagogy	(Valizadeh & Soltanpour, 2020)

Table 1. (Cont.)

Flipped Instruction	(Zhu, 2021)
Flipped Lessons	(Laura Angelini & García-Carbonell, 2019).
Flipped Lectures	(Wyatt, 2021)
Flipped Teaching	(Beason-Abmayr, Caprette, & Gopalan, 2021)
Flip Teaching	(Bachiller & Badía, 2020)
Flipped Education	(Alamry & Karaali, 2016)
Flip Education	(Jordan, Magrenan, & Orcos, 2019)
Inverted Classroom	(Cheng & Wang, 2021)
Inverted Learning	(Montoya & Hernandez, 2016)
Inverted Instruction	(Romero & Bobkina, 2021)
Inverted Teaching	(Christiansen, 2014)
Reverse Classroom	(Sherbino, Chan, & Schiff, 2013).
Reverse Teaching	(Nguyen, Yu, Japutra, & Chen, 2016).
Reverse Instruction	(Jones-Bonofiglio, Willett, & Ng, 2018).

As seen in Table 1, researchers used similar but different concepts to express the FC Model. These concepts were used in plain form or by taking phrases such as *model* (Tune, Sturek, & Basile, 2013), *method* (Etemi & Uzunboylu, 2020), *strategy* (Elian & Hamidi, 2018), *technique* (Sage & Sele, 2015), *instruction* (Gong, Yang, & Cai, 2020), *approach* (Ö. Özyurt & H. Özyurt), *teaching model* (Zhang, 2018), *teaching method* (Jian, 2019), *teaching strategy* (Zeng, 2021), *teaching approach* (Fan, Tseng, Chao, Chen, & Jane, 2020). In addition, when searched it was found that different words were placed between these concepts in relation to their usages. The uses of *the flipped math classroom* (Moreno, Palacios, Barreras, & Pascual, 2020), and *the flipped geography lecture* (Zeren, 2016) could be shown as examples.

The results of the literature review conducted to determine the frequency of use of the concepts in Table 1 are given in Table 2.

Table 2. Frequency of Uses of the FC Concepts

Concept	f	Query link
Flipped Classroom	1782	https://www.webofscience.com/wos/woscc/summary/abc181c9-a335-48fd-964e-0f11831f6fcc-05eae2c4/relevance/1
Flipped Learning	463	https://www.webofscience.com/wos/woscc/summary/72a38d2e-6809-4c78-b50b-e7bbd27330a1-05eafdbb/relevance/1
Flipped Class	117	https://www.webofscience.com/wos/woscc/summary/3526b55a-a108-4957-a279-7bc7764a4abe-05f36a38/relevance/1
Inverted Classroom	88	https://www.webofscience.com/wos/woscc/summary/dec26ade-cbd8-464b-9342-dc54e567cd6e-05eb5846/relevance/1
Flipped Instruction	68	https://www.webofscience.com/wos/woscc/summary/a8a272d6-83e5-497d-a7ae-5baa2a7ce340-05eb0c3b/relevance/1
Flipped Approach	56	https://www.webofscience.com/wos/woscc/summary/7dc1c88f-ce6b-4c85-b9f2-24dd9bd6391c-05eb010b/relevance/1
Flipped Teaching	56	https://www.webofscience.com/wos/woscc/summary/f1f55cc7-e060-4745-8c63-77913c6eb50c-05eb1e7e/relevance/1
Flip Teaching	18	https://www.webofscience.com/wos/woscc/summary/12cc2019-705c-456e-8471-3286b4358b19-05eb55fd/relevance/1
Flipped Pedagogy	14	https://www.webofscience.com/wos/woscc/summary/d4259c74-85a8-41df-bc87-b0a3d62f69dd-05eb04e2/relevance/1
Flip Classroom	11	https://www.webofscience.com/wos/woscc/summary/1b5007a7-264d-4fc8-ac05-aeaa5f9b8913-06244d99/relevance/1

Table 2. (Cont.)

Flipping Classroom	10	https://www.webofscience.com/wos/woscc/summary/215f47ce-0b7b-4327-9560-ff6c0686b8c3-05eaf9a8/relevance/1
Inverted Learning	8	https://www.webofscience.com/wos/woscc/summary/b4a6a4ed-1389-4dc9-a416-c7360f953892-05eb5a9f/relevance/1
Flipped Lessons	7	https://www.webofscience.com/wos/woscc/summary/5c079f6c-f36b-42cf-971c-973383b89e97-05eb1209/relevance/1
Flipped Education	6	https://www.webofscience.com/wos/woscc/summary/dadd14d3-1867-4848-8d92-6ed2e02318ac-05eb25f4/relevance/1
Flipped Lectures	5	https://www.webofscience.com/wos/woscc/summary/e2932a70-6803-49a3-b5ad-8bc67eb373fd-05eb18f4/relevance/1
Classroom Flip	4	https://www.webofscience.com/wos/woscc/summary/b95f6447-d517-4105-9b62-c5d6e50f9915-05eb2104/relevance/1
Inverted Instruction	4	https://www.webofscience.com/wos/woscc/summary/52641db1-9301-4ee8-93fa-86297e4baf20-05eb5cc9/relevance/1
Inverted Teaching	4	https://www.webofscience.com/wos/woscc/summary/c1f209ce-6e15-476a-9eb1-69d561c8f51d-05eb5fd4/relevance/1
Reverse Teaching	4	https://www.webofscience.com/wos/woscc/summary/58a86d92-04af-4a05-be88-78dedc77065f-070ef0a5/relevance/1
Flip Education	3	https://www.webofscience.com/wos/woscc/summary/dc8db8e9-198c-4192-97d5-d8c503a2837f-05eb2337/relevance/1
Reverse Classroom	3	https://www.webofscience.com/wos/woscc/summary/a351a52b-f444-49cd-a090-0bb61b9d614a-070eab6e/relevance/1
Reverse Instruction	3	https://www.webofscience.com/wos/woscc/summary/1777dfe3-0e81-430e-9272-ebe5a9658ea1-070fbb62/relevance/1

When the results in Table 2 are examined, it is seen that the concept of FC is mostly used. It is revealed that the concepts of flipped learning, flipped class and inverted classroom are the most widely used concepts after FC, respectively.

Discussion, Conclusion, and Implications

Within the scope of this research, it was aimed to reveal the historical development of the FC Model and which concepts were used in the literature to express the concept of FC over the years. The information presented about the historical development of the FC Model, for the purpose of the study was obtained through document review, and the information presented about the use of the FC concept was obtained through literature review. The following conclusions were inferred from the information obtained.

The first result obtained from the research is that the FC Model is a current teaching model with a history of approximately 20 years. Although the ideas that paved the way for the emergence of the model date back to earlier, it was in 2000 that the FC Model began to be expressed as a concept (Baker, 2000; Lage et al., 2000). The model started to become widespread in 2007. Thanks to the videos posted by Jonathan Bergmann and Aaron Sams, who were chemistry teachers at Woodland Park High School in the USA in 2007, the FC Model soon attracted the attention of teachers and academics. Key to the results obtained from the research, it can be said that the interest in the FC Model continues to increase.

With the increasing interest in the FC Model over the years, the concepts used to express the model in the literature have also varied. As a result of the scanning, twenty-two concepts that are close to each other but different from each other were identified. It has been observed that these concepts have diversified through the basic structures of flipped classroom, inverted

classroom and reverse classroom. In addition, by far the most common usage in this variety is the concept of FC. Following FC, the most commonly used concepts are flipped learning, flipped class and inverted classroom.

When the research results are evaluated as a whole, it can be said that although the FC Model is a teaching model with a history of about 20 years, it has quite different uses as a concept. This situation complicates the literature review process, especially for new researchers interested in the subject and educators who want to learn about the model. In addition, if the researchers who have a good comprehension of the subject do a search with a few concepts that are widely used following the current literature and/or conducting systematic reviews, it may cause them not to analyze the literature thoroughly. In order to prevent this, it is recommended to use all of the concepts revealed by the research results as keywords. In addition, in order to reach unity as a concept, it is recommended to use the concept of FC in studies to be carried out on this subject.

In summary, it is thought that the results of this research will shed light on the field in terms of revealing the historical development of the FC Model and the concepts used in the context of FC in literature. Particularly, it is expected to contribute to the researchers who already work and for the ones who will start working on this subject.

References

- Abeysekera, L., & Dawson, P. (2014). Motivation and cognitive load in the flipped classroom: Definition, rationale and a call for research. *Higher Education Research & Development*, 34(1), 1-14. <https://doi.org/10.1080/07294360.2014.934336>
- Alamry, A., & Karaali, A. (2016). Flipped education: Transitioning to the homeschool environment. *Cogent Education*, 3(1), 1-9. <https://doi.org/10.1080/2331186X.2016.1224607>
- Anderson, L.W., & Krathwohl, D.R. (Eds.) (2001). *A Taxonomy for learning, teaching, and assessing: A revision of bloom's taxonomy of educational objectives*. New York, NY: Longman.
- Bachiller, P., & Badía, G. (2020). The flip teaching as tool to improving students' sustainable learning performance in a financial course. *Sustainability*, 12(23), 1-11. <https://doi.org/10.3390/su12239998>
- Baker, J. W. (2000). *The "Classroom Flip": Using web course management tools to become the guide by the side*. Paper presented at the 11th International Conference on College Teaching and Learning, Jacksonville, FL.
- Bates, J. E., Almekdash, H., & Gilchrest-Dunnam, M. J. (2017). The flipped classroom: A brief, brief history. In L. S. Green, J. R. Banas, & R. A. Perkins (Eds.), *The flipped college classroom: Conceptualized and re-conceptualized* (pp. 3-10). Gewerbestrasse, Cham: Springer. https://doi.org/10.1007/978-3-319-41855-1_1
- Beason-Abmayr, B., Caprette, D. R., & Gopalan, C. (2021). Flipped teaching eased the transition from face-to-face teaching to online instruction during the COVID-19 pandemic. *Advances in Physiology Education* 45(2), 384–389. <https://doi.org/10.1152/advan.00248.2020>
- Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. Oregon, Washington: ISTE.
- Bergmann, J., & Sams, A. (2015a). *The flipped learning for elementary instruction*. Oregon, Washington: ISTE.
- Bergmann, J., & Sams, A. (2015b). *The flipped learning for English instruction*. Oregon, Washington: ISTE.
- Bergmann, J., & Sams, A. (2015c). *The flipped learning for math instruction*. Oregon, Washington: ISTE.
- Bergmann, J., & Sams, A. (2015d). *The flipped learning for science instruction*. Oregon, Washington: ISTE.
- Bergmann, J., & Sams, A. (2015e). *The flipped learning for social studies instruction*. Washington: ISTE.
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40. <https://doi.org/10.3316/QRJ0902027>
- Bozkurt, A. (2020). Koronavirüs (Covid-19) pandemi süreci ve pandemi sonrası dünyada eğitime yönelik değerlendirmeler: Yeni normal ve yeni eğitim paradigması. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi*, 6(3), 112-142. <https://doi.org/10.29065/usakead.777652>
- Carlisle, C. S. (2018). *How the flipped classroom impacts students' math achievement*. (Unpublished doctoral dissertation). Trevecca Nazarene University, Nashville, USA.
- Cheng, J., & Wang, X. (2021). Artificial intelligence based on effectiveness of inverted classroom teaching of college sports. *Journal of intelligent & Fuzzy Systems*, 40(2), 3755-3765. <https://doi.org/10.3233/JIFS-189409>

- Christiansen, M. A. (2014). Inverted teaching: Applying a new pedagogy to a university organic chemistry class. *Journal of Chemical Education*, 91(11), 1845-1850. <https://doi.org/10.1021/ed400530z>
- Crouch, C., & Mazur, E. (2001). Peer instruction: Ten years of experience and results. *American Association of Physics Teachers*, 69(9), 970-977. <https://doi.org/10.1119/1.1374249>
- Croy, G., Garvey, L., Willetts, G., Wheelahan, J., & Hood, K. (2020). Anxiety, flipped approach and self-efficacy: Exploring nursing student outcomes. *Nurse Education Today*, 93, 1-6. <https://doi.org/10.1016/j.nedt.2020.104534>
- Elian, S. A., & Hamaidi, D. A. (2018). The effect of using flipped classroom strategy on the academic achievement of fourth grade students in Jordan. *International Journal of Emerging Technologies in Learning*, 13(2), 110-125. <https://doi.org/10.3991/ijet.v13i02.7816>
- Etemi, B. P., & Uzunboylu, H. (2020). The effects of flipped learning method on students' perception and learning of java programming. *International Journal of Engineering Education*, 36(4), 1372-1382.
- Gross, J. M. S. (2018). Document analysis. In B. B. Frey (Ed.), *The SAGE encyclopedia of educational research, measurement, and evaluation* (pp. 544-548). Thousand Oaks, NY: SAGE Publications <https://doi.org/10.4135/9781506326139>
- Gong, D., Yang, H. H., & Cai, J. (2020). Exploring the key influencing factors on college students' computational thinking skills through flipped-classroom instruction. *International Journal of Educational Technology in Higher Education*, 17(19), 1-13. <https://doi.org/10.1186/s41239-020-00196-0>
- Graham, C. R. (2006). Blended learning systems: Definition, current trends, and future directions. In Bonk, C. J. & Graham, C. R. (Eds.), *Handbook of blended learning: global perspectives, local designs* (pp. 3-21). San Francisco, CA: Pfeiffer.
- Hayırsever, F., & Orhan, A. (2018). A theoretical analysis of flipped learning. *Mersin University Journal of the Faculty of Education*, 14(2), 572-596. <https://doi.org/10.17860/mersinefd.431745>
- Horn, M. B., & Staker, H. (2014). *Blended: Using disruptive innovation to improve schools*. New Jersey: Josey Bass.
- Jian, Q. (2019). Effects of digital flipped classroom teaching method integrated cooperative learning model on learning motivation and outcome. *The Electronic Library*, 37(5), 842-859. <https://doi.org/10.1108/EL-02-2019-0024>
- Jones-Bonofiglio, K. D., Willett, T., & Ng, S. (2018). An evaluation of flipped e-learning experiences. *Medical Teacher*, 40(9), 953-961. <https://doi.org/10.1080/0142159X.2017.1417577>
- Jordan, C., Magrenan, A. A., & Orcos, L. (2019). Considerations about flip education in the teaching of advanced mathematics. *Education Sciences*, 9(3), 1-10. <https://doi.org/10.3390/educsci9030227>
- King, A. (1993). From sage on the stage to guide on the side. *College Teaching*, 41(1), 30-35. <https://doi.org/10.1080/87567555.1993.9926781>
- Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education*, 31(1), 30-43. <https://doi.org/10.1080/00220480009596759>
- Laura Angelini, M., & García-Carbonell, A. (2019). Enhancing students' written production in English through flipped lessons and simulations. *International Journal of Educational Technology in Higher Education*, 16(2), 1-19. <https://doi.org/10.1186/s41239-019-0131-8>

- Li, J., Zhang, X., & Hu, Z. (2018). The design and application of flip classroom teaching based on computer technology. *International Journal of Emerging Technologies in Learning*, 13(10), 95-107. <https://doi.org/10.3991/ijet.v13i10.9453>
- Little, C. (2015) The flipped classroom in further education: literature review and case study, *Research in Post-Compulsory Education*, 20(3), 265-279, <https://doi.org/10.1080/13596748.2015.1063260>
- Montoya, M. S. R., & Hernandez, D. C. R. (2016). Inverted learning environments with technology, innovation and flexibility: Student experiences and meanings. *Journal of Information Technology Research*, 9(1), 18-33. <https://doi.org/10.4018/JITR.2016010102>
- Moreno, D., Palacios, A., Barreras, A., & Pascual, V. (2020). An assessment of the impact of teachers' digital competence on the quality of videos developed for the flipped math classroom. *Mathematics*, 8(2), 1-16. <https://doi.org/10.3390/math8020148>
- Nguyen, B., Yu, X., Japutra, A., & Chen, C. H. S. (2016). Reverse teaching: Exploring student perceptions of "flip teaching". *Active Learning in Higher Education*, 17(1), 51-61. <https://doi.org/10.1177/1469787415616727>
- Özyurt, Ö., & Özyurt, H. (2017). A qualitative study about enriching programming and algorithm teaching with flipped classroom approach. *Pegem Journal of Education and Instruction*, 7(2), 189-210. <https://doi.org/10.14527/pegegog.2017.007>
- Pierce, R., & Fox, J. (2012). Vodcasts and active-learning exercises in a "Flipped Classroom" model of a renal pharmacotherapy module. *American Journal of Pharmaceutical Education*, 76(10), 1-5. <https://doi.org/10.5688/ajpe7610196>
- Romero, E. D., & Bobkina, J. (2021). Exploring the perceived benefits and drawbacks of using multimodal learning objects in pre-service English teacher inverted instruction. *Education and Information Technologies*, 26(3), 2961-2980. <https://doi.org/10.1007/s10639-020-10386-y>
- Seery, M. K. (2015). Flipped learning in higher education chemistry: emerging trends and potential directions. *Chemistry Education Research and Practice*, 16(4), 758-768. <https://doi.org/10.1039/C5RP00136F>
- Sherbino, J., Chan, T., & Schiff, K. (2013). The reverse classroom: Lectures on your own and homework with faculty. *Canadian Journal of Emergency Medicine*, 15(3), 179-181. <https://doi.org/10.2310/8000.2013.130996>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of business research*, 104, 333-339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Şahin, M., Fell Kurban, C., & Mazur, E. (2019). *The new university model: Flipped, adaptive, digital and active learning (FADAL)*. Texas: FL Global.
- Tucker, B. (2011). The flipped classroom. *Education Next*. 12(1). Retrieved from <https://www.educationnext.org/the-flipped-classroom/>
- Tune, J. D., Sturek, M., & Basile, D. P. (2013). Flipped classroom model improves graduate student performance in cardiovascular, respiratory, and renal physiology. *Advances in Physiology Education*, 37(4), 316-320. <https://doi.org/10.1152/advan.00091.2013>
- Valizadeh, M., & Soltanpour, F. (2020). The flipped pedagogy: Effects on the grammatical competence and writing skill of basic users of English. *International Journal of Instruction*, 13(3), 761-776. <https://doi.org/10.29333/iji.2020.13351a>
- Wang, J., Jou, M., Lv, Y., & Huang, C. C. (2018). An investigation on teaching performances of model-based flipping classroom for physics supported by modern teaching Technologies. *Computers in Human Behavior*, 84, 36-48. <https://doi.org/10.1016/j.chb.2018.02.018>

- Wilson, S. G. (2013). The flipped class: A method to address the challenges of an undergraduate statistics course. *Teaching of Psychology*, 40(3), 193-199. <https://doi.org/10.1177/0098628313487461>
- Wyatt, P. (2021). Active learning: From flipped lectures to the covid-19 era. *Future of Chemical Education*, 75(1-2), 14-17. <https://doi.org/10.2533/chimia.2021.14>
- Yıldırım, A., & Şimşek, H. (2018). *Sosyal bilimlerde nitel araştırma yöntemleri* (11. baskı). Ankara: Seçkin Yayıncılık.
- Zeng, C. (2021). Application of large-scale cognitive social networks based on cooperative transmission mechanisms in exploration of flipped classroom teaching strategy. *Complexity*, 2021, 1-11. <https://doi.org/10.1155/2021/8988165>
- Zeren, M. G. (2016). The flipped geography lecture. *Marmara Geographical Review*, (33), 25-57. <https://doi.org/10.14781/mcd.79389>
- Zhang, L. L. (2018). English flipped classroom teaching model based on cooperative learning. *Educational Sciences: Theory & Practice*, 18(6), 3652-3661. <https://doi.org/10.12738/estp.2018.6.278>
- Zhu, G. (2021). Is flipping effective? A meta-analysis of the effect of flipped instruction on K-12 students' academic achievement. *Educational Technology Research and Development*, 69(2), 733-761. <https://doi.org/10.1007/s11423-021-09983-6>
- Zownorega, J. S. (2013). *Effectiveness of flipping the classroom in a honors level, mechanics-based physics class*. (Unpublished master's dissertation). Eastern Illinois University, Charleston, USA.



Ters Yüz Sınıf Modeli'nin Tarihi ve Ters Yüz Sınıf Kavramının Kullanımları

Giriş

Gelişen teknoloji insan hayatının pek çok alanında olduğu gibi; eğitim öğretim faaliyetlerini de etkilemektedir. Değişen hayat şartları ve ihtiyaçlarla uyumlu, etkili öğretim faaliyetleri gerçekleştirebilmek için uluslararası düzeyde farklı araştırmacılar, yeni fikir ve uygulamalar denemekte ve önermektedir. Eğitsel teknolojinin son yıllarda ortaya koyduğu uygulamalardan biri de Ters Yüz Sınıf [(TYS)-Flipped Classroom (FC)] Modeli'dir. TYS Modeli, çevrimiçi ve yüz yüze eğitimin birleştirilmesi olarak ifade edilen (Graham, 2006) harmanlanmış öğrenme modellerinden biri olarak kabul edilmektedir (Hayırsever & Orhan, 2018; Horn & Staker, 2014).

Geleneksel eğitimin tersi olarak adlandırılabilir bu uygulama teorik bölümlerin ders dışı zamanda öğrenilmesine dayanmaktadır. Üst düzey, karmaşık ve uygulamaya dayalı etkinlikler ise eğitim öğretim sürecinde yapılmaktadır. Sürecin işleyişine bağlı olarak Abeysekera ve Dawson bu modeli TYS Modeli olarak tanımlamaktadır. Çünkü geleneksel anlayış öğretmenin sınıfta dersi anlatması ve ardından ev ödevi vermesi şeklinde ilerlerken; TYS Modeli, ders anlatımının ders dışında izlenmesi; ödev olabilecek uygulamaların ise sınıfta yapılması mantığı üzerine kuruludur (Abeysekera & Dawson, 2015).

Son yıllarda eğitim teknolojilerinin gelişmesi ve yaygınlaşması ile birlikte TYS Modeli'ne olan ilgi artmıştır. Bu kapsamda TYS Modeli'nin tarihsel gelişimi ve özellikle konu ile ilgili literatür taranırken FC kavramının farklı anlamları ve kullanım alanları dikkatlice gözden geçirilmelidir. Bunların neler olduğunun bilinmesi oldukça önemlidir. İlgili literatür incelendiğinde doğrudan TYS Modeli'nin tarihini konu edinen yalnızca bir kaynağa rastlanmış (Bates, Almekdash, & Gilchrest-Dunnam, 2017); kavram olarak ne tür kullanımlarının olduğunu konu edinen kapsamlı bir araştırmaya ise rastlanmamıştır. Literatürde ağırlıklı olarak, konu ile ilgili çalışan araştırmacıların model hakkında bilgi verirken bu konulardan kısaca bahsettikleri görülmüştür (Carlisle, 2018; Hayırsever & Orhan, 2018; Little, 2015; Temizyürek & Ünlü, 2015). Dolayısıyla TYS Modeli'nin tarihsel gelişimi ve FC kavramının kullanımları hakkında bilgi edinmek isteyen araştırmacıların literatürü dikkatli olarak incelemesi gerektiği fark edilmiştir. Bu nedenle TYS Modeli'nin ortaya çıkışından bugüne kadar geçirdiği süreci ve mevcut literatürde zaman içerisinde hangi kavramlarla ifade edildiğini ortaya koyan bir araştırmaya ihtiyaç olduğu düşünülmüştür.

Araştırmanın Amacı

Bu araştırmanın temel amacı TYS Modeli'nin tarihsel gelişimi ve FC kavramının literatürde hangi kavramlar ile kullanıldığını ortaya koymaktır. Bu kapsamda aşağıdaki sorulara cevap aranmıştır:

- TYS Modeli'nin tarihsel gelişim süreci nasıl bir yol izlemektedir?

- FC kavramının literatürdeki farklı kullanımları nelerdir?
- Literatürde FC kavramlarının kullanım sıklıkları nelerdir?

Yöntem

Bu araştırmada doküman analizi yöntemi kullanılmıştır. Doküman analizi, araştırma konusu hakkında bilgi içeren basılı ve/veya elektronik belgelerin sistematik bir prosedür ile gözden geçirilip değerlendirildiği bir nitel araştırma yöntemidir (Bowen, 2009; Gross, 2018). Bu araştırma kapsamında incelenen dokümanlara internet üzerinden yapılan tarama ile ulaşılmıştır.

FC Modeli'nin tarihsel gelişimini ortaya koymak amacıyla yapılan doküman analizinde şu prosedür izlenmiştir: Webde FC şeklinde yapılan ilk arama ile süreç başlamıştır. Bu amaçla yapılan literatür taramasında ulaşılan her doküman, başka dokümanlara ulaşılmasını sağlamıştır. Konu ile ilgili çok sayıda kitap ve makale incelenmiştir. Ulaşılan veriler öncelik sonralık durumlarına göre analiz edilmiş; kronolojik olarak değerlendirilmiş ve sonuçlar sunulmuştur.

FC kavramının literatürdeki kullanımlarını ve bu kullanımlar arasından hangisinin/hangilerinin daha yaygın olduğunu belirlemek amacıyla yapılan doküman analizinde ise şu prosedür izlenmiştir: İncelenecek dokümanları belirlemek için Web of Science Core Collection, Education Resources Information Center (ERIC), Scopus ve Science Direct veri tabanlarındaki makaleler taranmıştır. Bu veri tabanlarında ilk olarak FC ve inverted classroom kavramları tırnak içerisinde alınmadan taranmıştır. Tarama 2000-2021 yılları arasından makale başlıkları, özeti ve anahtar kelimeleri üzerinden; İngilizce dilinde yapılmıştır. Bu kriterlerde yapılan her tarama sonucunda çıkan her farklı kullanım, aynı tarama kriterleri ile tekrar yapılmıştır. Böylece FC kavramını ifade etmek için kullanılan her kavram, yeni kavramlara ulaşmada araç olarak kullanılmıştır. Bu sayede TYS Modeli'ni ifade etmek için kullanılan farklı kavramlar tespit edilmiştir. Veri doygunluğa ulaşıncaya tarama sonlandırılmıştır.

Yapılan ilk literatür taraması sonucunda ulaşılan kavramların kullanım yaygınlık durumunu belirlemek amacıyla ikinci kez tarama yapılmıştır. Ulaşılan her kavram 28 Ağustos 2021 tarihinde Web of Science Core Collection veri tabanında tırnak içine alınarak ayrı ayrı taratılmıştır. Tarama 2000-2021 yılları arasında İngilizce makaleler üzerinden başlıkta özet ve anahtar kelimelerde yapılmıştır.

Bulgular

Araştırma sonuçlarına göre TYS Modeli'nin ortaya çıkmasına zemin hazırlayan fikir ve uygulamalar daha eskiye dayansa da; kavram olarak bugünkü şekliyle ifade edilmesinin 2000 yılında olduğu görülmüştür. Ayrıca yıllar içerisinde TYS Modeli'ne olan ilginin artarak devam ettiği ve bununla birlikte TYS Modelinin yirmi iki farklı kavram ile ifade edildiği ortaya konulmuştur. Yapılan inceleme sonucunda, bu kavramlar arasından en çok FC'nin kullanıldığı belirlenmiştir. Sırasıyla flipped learning, flipped class ve inverted classroom kavramlarının FC'den sonra en yaygın kullanımı olan kavramlar olduğu ortaya konulmuştur.

Tartışma, Sonuç ve Öneriler

Araştırmadan elde edilen ilk sonuç TYS Modeli'nin yaklaşık 20 yıllık bir geçmişe sahip olan güncel bir öğretim modeli olduğudur. Modelin ortaya çıkmasına zemin hazırlayan fikirler daha

eskiye dayansa da TYS Modeli'nin kavram olarak ifade edilmeye başlaması 2000 yılında olmuřtur (Baker, 2000; Lage vd., 2000). Modelin yaygınlaşmaya başlaması ise 2007 yılında olmuřtur. İki bin yedi yılında Amerika'da Woodland Park High School'da kimya öğretmenliđi yapan Jonathan Bergmann ve Aaron Sams'ın, sanal ortamda yayınladıđı ders videoları sayesinde TYS Modeli kısa zamanda öğretmenler ve akademisyenler tarafından ilgi görmüřtür. Arařtırmadan elde edilen sonuçlara göre TYS Modeli'ne olan ilginin her geen gün artarak devam ettiđi söylenebilir.

Yıllar içerisinde TYS Modeli'ne artan ilgi ile birlikte, literatürde modeli ifade etmek için kullanılan kavramlar da eřitlilik göstermiřtir. Yapılan tarama sonucunda kavramın İngilizce'de birbirine yakın fakat farklı yirmi iki kavramla ifade edildiđi görölmüřtür. Bu kavramların FC, inverted classroom ve reverse classroom temel yapıları üzerinden eřitlendiđi görölmüřtür. Ayrıca bu eřitlilik içerisinde açık ara farkla en yaygın olan kullanım FC kavramıdır. FC'den sonra sırasıyla en yaygın kullanımı olan kavramlar flipped learning, flipped class ve inverted classroom kavramlarıdır.

Arařtırma sonuçları bir bütün olarak deđerlendirildiđinde TYS Modeli'nin yaklaşık 20 yıllık gemiře sahip olan bir öğretim modeli olmasına rađmen; kavram olarak oldukça farklı kullanımlara sahip olduđu söylenebilir. Bu durum özellikle konu ile ilgilenen yeni arařtırmacılar ve model hakkında bilgi sahibi olmak isteyen eğitimciler için literatür inceleme sürecini karmařık hale getirmektedir. Ayrıca konuya hakim olan arařtırmacıların, güncel literatürü takip ederken ve/veya sistematik inceleme türü arařtırmalar yürütürken, yaygın kullanımı olan birkaç kavram ile tarama yapmaları halinde, literatüre tam olarak hakim olamamalarına neden olabilmektedir. Bunun önüne gemek için arařtırma sonuçları ile ortaya konan kavramların tamamının anahtar kelime olarak kullanılması önerilmektedir. Ayrıca kavram olarak bir birlikteliđe varmak için bu konuda yapılacak alıřmalarda FC kavramının kullanılması önerilmektedir.

Özetle bu arařtırma sonuçlarının TYS Modeli'nin tarihsel gelişimi ve FC kavramının literatürde hangi kavramlarla kullandığını ortaya koyması açısından alandaki önemli bir eksikliđi giderdiđi düşünölmektedir. Özellikle bu konuda alıřan ve alıřmaya başlayacak olan arařtırmacılara katkılarının olması beklenmektedir.

Acknowledgment

We would like to thank Atatürk University for providing access to the Web of Science Core Collection, ERIC, Scopus, and Science Direct databases within the scope of this research.

