

## A BIBLIOMETRIC ANALYSIS OF THE LAST 25 YEARS OF VIRTUAL REALITY STUDIES IN TOURISM

Gökçe Yüksek<sup>a,\*</sup>, Mustafa Coskuner<sup>b</sup>, Altan Çetin<sup>c</sup>, Nesrin Savaş<sup>d</sup>

<sup>a</sup>Department of Tour Guidance, Faculty of Tourism, Anadolu University, Eskisehir, Turkey.  
ORCID: 0000-0002-1010-8694 / e-mail: gozer@anadolu.edu.tr

<sup>b</sup>Department of Tourism Management, Graduate School of Social Sciences, Anadolu University, Eskisehir, Turkey.  
ORCID: 0000-0003-3032-1836 / e-mail: mustafacoskuner03@gmail.com

<sup>c</sup>Department of Tourism Management, Graduate School of Social Sciences, Anadolu University, Eskisehir, Turkey.  
ORCID: 0000-0002-4271-4760 / e-mail: altanc@anadolu.edu.tr

<sup>d</sup>Department of Hotel, Restaurant and Catering Services, Diyarbakir Vocational School of Social Sciences, Dicle University, Diyarbakir, Turkey.  
ORCID: 0000-0002-5131-5550 / e-mail: n\_savas@anadolu.edu.tr

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### ABSTRACT

Virtual reality applications that have been diversified day by day are important in tourism as well as in engineering, medicine, education and marketing. Making all kinds of marketing and reservations in a virtual environment in tourism is one of the most important advantages of tourism today. Due to the nature of virtual reality applications, it is valuable to promote tourism because tourism is based on discovering new places and getting new experiences. The aim of this study is to present the profile of articles about tourism and virtual reality in Turkey. For this purpose, a bibliometric analysis was carried out over 73 articles which were published in Turkish Academic Network and Information Center (ULAKBIM) between 1996-2009. Among the articles published on virtual reality, 1 article was found to be in Tourism discipline. Accordingly, it was concluded that the publications in the field were insufficient. Therefore, considering that the importance of virtual reality applications will increase for the tourism industry in the coming years, it could be recommended that tourism researchers in universities focus more on this issue. The tourism industry will need marketing devices that will both help feel remote and as if they were in the destination.

## 1. Introduction

The technology that has changed and developed from the past to the present has increased the use of the Internet and entered a period called the internet age. This period accelerates the sharing of information and the accessibility to information and provides convenience in people's lives. The development of virtual reality technology, which is one of the benefits of modern technology that facilitates human life, has led to this technology in the businesses in the tourism sector as well as in the medical, engineering and construction sectors (Durmaz, Bulut & Tankus, 2018, p. 33).

Internet accelerates the flow of information in the world and provides advantages in terms of time and space (Arat & Baltacıoğlu, 2016, p. 105). The Internet accelerates the flow of information around the world and provides advantages in time and space (Aktamış & Arıcı, 2013, p. 58). However, the trend towards virtual reality programs has also increased. As people make their lives easier, their interest in the virtual environment has started to increase in the tourism sector. This situation has brought the concepts such as virtual tours and virtual reality together with the new

and modern technology. It is possible to benefit from these programs for places that cannot be visited or seen. Virtual reality is a simulation using computer graphics to create a world that seems to be real. Virtual reality is not a stagnant world which has been synthesized. Virtual reality is a dynamic world that reacts to user's input. Virtual reality programs are a system in which a user can effectively control this simulation environment through various devices in a computer-generated three-dimensional simulation of a real-world situation. This technology can be used in many fields and for various purposes. It is inevitable that the tourism sector will take its share from this technology. Nowadays, with the rapid spread of the concept of virtual tours, in order to increase the passion of curiosity, the introduction of destination areas based on panoramic images to tourists has become an environment which not only attracts products and services but also attracts more customers (Arat & Baltacıoğlu, 2015, p. 105).

\*Corresponding Author.

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Virtual reality has found a wide range of applications from entertainment to engineering, from medical experiments to scientific experiments. Tourism is an important sector where information and communication technologies are used extensively. Tourism, like other sectors, must keep up with technological developments. Otherwise, tourism activities lose their attractiveness and cannot develop. This technology, which has an important place especially in sharing and spreading the fame of tourism destinations, is rapidly developing today. The use of virtual reality is expected to increase gradually in the promotion activities of the country. It is seen that especially tourism destinations use virtual reality applications to introduce themselves. It is predicted that travel agencies will make a difference and be successful with virtual tours. Since technology provides many conveniences and benefits, it creates a sense of attraction and preference for both producers and consumers. Virtual reality technology also provides many benefits to all stakeholders (businesses, tourists, museums, destinations, etc.) in tourism, and it attracts attention, curiosity, desires and needs. Virtual reality technology creates three-dimensional visual objects and virtual environments in tourism, and it is used for tourists' tourism businesses, destinations, museums, historical, cultural and architectural areas, etc. It offers the opportunity to experience places in a virtual environment as if they were real before. In addition, it guides the tourists in the destination and gives them information about touristic, historical, architectural and cultural places and tourism businesses (Demirezen, 2019, p. 2).

This study, which was conducted in Turkey to investigate the published scientific papers on Turkish Academic Network and Information Center (ULAKBIM) related to tourism and virtual reality through bibliometric analysis, is intended to reveal the profile of tourism-related articles and virtual reality. In addition, the use of virtual reality technology in tourism has been examined and recommendations have been developed for the use of this technology in tourism. Moreover, suggestions for the use of virtual reality in the field of tourism were developed and the research results were aimed to guide future scientific studies.

## 2. Virtual Reality

Virtual reality is a simulation model that gives its participants a feeling of realism, enabling mutual communication with a dynamic environment created by computers. The most basic feature of the definition that distinguishes many applications from virtual reality is that it gives the participants a feeling of reality. The users should be able to go wherever they want in this environment created by computers, that is, they should feel that the control is in their hands. This can only be achieved through mutual interaction (Pimental & Teixeira, 1993).

With the development of computer technology, the

interaction of people with computers has improved, and the elements that will be similar to people's perceptions have begun to be created. Virtual reality technology, which is one of the created items, has the feature of creating a virtual image close to the concept and structuring human computer interaction. "In addition, in this world, opportunities to share a real-time connection, the same space and visuality are offered" (Coleman, 2012, p. 27).

As the computer and internet technologies developed, the internet-human interaction developed and enabled expressions closer to human perception. One of these expressions is virtual reality. Virtual reality is a system in a computer-generated three-dimensional simulation of a real-world situation where the user can emotionally perceive this simulation environment with the special devices they wear, and can effectively control this artificial world through these devices (Kayabaşı, 2005). In virtual reality, everything is a simulation of virtual or digital reality. Virtual reality opens up the gates of the three-dimensional world, and beyond that, it offers us a realistic experience.

According to another definition, virtual reality is a three-dimensional, interactive, computer-generated environment that sees information and human as integrated. They are three-dimensional, interactive and computer-generated environments. These environments are models of real or imaginary worlds (Warwick, Gray, & Roberts, 1993, p. 3). According to Tepe et al, Virtual reality is a system that allows people to mislead their senses and feel themselves in realistic environments (Tepe, Kaleci, & Tüzün, 2016). It is based on the principle that the virtual reality viewer or the user is etiology within an edited time structure and interacts with it in an advanced image space. It has been defined as an environment consisting of technological tools such as three-dimensional image and audio devices, reproducing devices by simulating sensory effects such as power, motion and touch, consisting of various data input and output Technologies (Kuruüzümcü, 2007). According to another definition, virtual reality is structured on the approach of combining an environment created with (virtual) human senses in a computer environment with graphics, colors, animations and sound effects, and making one feel like part of the environment (Arat & Baltacıoğlu, 2016, p. 17).

In the light of the above definitions, virtual reality can be summarized as a three-dimensional simulation environment in which users interact with other objects in order to have real-life experiences in an artificial world made by the computer with the imaging equipment that they wear on their bodies or enter into different devices (Deryakulu, 1999, p. 78). Karasar (2014) describes the effects of virtual reality on participants from Dagit (1993):

- The environment engages the participant,
- The participants feel that they are there,

- The participant is in interaction with the environment,
- The participant is free to examine the environment and participate in the activity,
- The participant is free to explore and engage in activities within the environment and multiple users can interact simultaneously in the same environment.

Virtual reality, headphones, screen, smart glasses, computers, smart glove, etc. with the help of smart devices, such as events in the realm of the realization of the virtual environment is a technology that provides a sense of reality. Virtual reality makes people forget about the real world by immersing them in virtual environments and drawing them into virtual environments and enables them to be active and act as if they were real in the artificial world (Demirezen, 2019, p. 6). Interaction devices used in virtual reality may vary according to their purpose. These are head mounted presentation systems (HMD), data glove, data clothing (body suits) and space ball (Tepe, Goalkeeper, & Tüzün, 2016, pp. 550-551).

Although virtual reality applications seem to be a costly technology, the experience of virtual reality has become desirable and well sought after by everyone. Increasing interest in virtual reality has attracted the attention of mobile technology companies in the first place, and this paved the way for the development of many new mobile hardware and applications including virtual reality components. Virtual reality applications have become accessible and usable especially for mobile operating systems by reducing the costs of virtual reality glasses. Many free virtual reality applications that can be downloaded from PlayStore or the App Store have become easily accessible to every user with smart devices thanks to the cost-effective Cardboard glasses developed by Google (Tepe, kaleci, & Tüzün, 2016 p. 550-551). It is seen that the virtual reality used in many sectors is now being used in the tourism sector. There are many examples of the rapid implementation of this technology, which is used especially in virtual tours and virtual museums (Arat & Baltacıoğlu, 2016, p. 111).

### 3. Virtual Reality in Tourism

Virtual Reality technologies, which are expected to reach a market of US\$ 40 billion in 2020, have found their place in the tourism industry as in many other fields (Kanak, Erdoğan & Yılmaz, 2018, p. 1). The tourism sector is one of the sectors that can benefit greatly from the advantages of virtual reality technology. With this superior technology, it is possible to see the places we want to go to, to travel to Mars, to walk on the Moon, to travel at the speed of light (Kurbanoğlu, 1996, p. 27).

Two of the important virtual reality applications in tourism are virtual tours and virtual museums. It can be said that virtual tours started by being influenced by virtual museology. A virtual tour is a visual application that gives the impression of a three-dimensional image

and transfers, with the latest technology software and visual media applications from photographs, creating a feeling of navigation for the visitor in the internet environment. Virtual tour is the process of creating panoramic images with special shooting materials and photographing techniques, and processing these photos and then combining them to obtain a global image (Koçer and Uzunsakal, 2015, p. 1).

The development of virtual reality technology is effective in creating potential tourists in the tourism sector. The increase in the use of virtual reality as a means of publicity has given rise to great opportunities in increasing tourism earnings of enterprises and states, giving people pre-experience and influencing decision-making processes (Durmaz, Bulut, & Tankuş, 2018, p. 39).

Virtual tours can be divided into two-dimensional and three-dimensional. Two-dimensional virtual tours, contextual, educational and brochure virtual tours can be examined in three sections. Three-dimensional virtual tours are virtual tours in which three-dimensional (3D) models, which are designed in the same way as the reality, are created with real-time rendering software called game engine software. The most important feature of such virtual tour applications is that there is user intervention. It is useful in terms of being visual and creating a sense of reality and is aimed at giving people more time (Derman, 2012, pp. 15-16).

The use of virtual reality technology can lead to the pre-experience that has never been possible in the tourism industry. Experiencing the preliminary experience enables potential customers to be created, people to turn to businesses using technology and accordingly, the demand increases. One of the benefits of the increased demand is that by introducing this technology, it will affect the businesses positively in the point of reservation and marketing (Durmaz, Bulut, & Tankuş, 2018, p. 38).

3D virtual reality technology with the ancient city in Turkey on a tourist trip in Bergama Zeus, Athena and Asclepius temple offers 3D sightseeing opportunities. The province of Mersin is introduced using the virtual tour method in the Mersin virtual environment with the Techno Mersin Project developed in cooperation with the Mersin Metropolitan Municipality and the Tourism Area of Mersin and Surrounding Area (METAB) (Ekici & Güven, 2017, pp. 406-408). Making all kinds of marketing and reservations in the virtual environment in tourism is one of the most important advantages of tourism in today's world where internet is widely used. People leaving their homes, visiting the hotels they want to go with the virtual reality application, and choosing their rooms by seeing three-dimensional in advance, will create a more positive image for the hotel in the eyes of people than other hotels. Virtual reality application for hotel staff can also be motivating. In addition to working personnel, having a device that shows the guests in all areas of the hotel in 3D will facilitate the work of the personnel (Arat & Baltacıoğlu, 2016, p. 110).

Advances in technology, in many forms, often have a direct and lasting impact on tourism. Recently, developments in information and communication technologies have changed tourism in many ways with its effects in various fields from consumer demands to management. For example, many tourists have adopted the Internet as a means of acquiring travel information. An important area of ICT is virtual reality, which is widely used in a variety of fields, including entertainment, design and simulation training. In fact, virtual reality has various uses in the tourism industry. For example, a London-based travel agency marketing an Amazon eco-tourism river cruise may want to promote the trip using a fully immersive, head-mounted presentation system that allows potential customers to enjoy a virtual simulation of the tour (Demirezen, 2019, pp. 7-8).

With the introduction of virtual reality and the significant increase in its advantages, businesses have turned to using technology in this field. It is able to provide a pre-experience that is not possible to be lived in the tourism sector before and enables the companies using this technology to differentiate from other enterprises and create a brand image. Providing the preliminary experience enables potential customers to be created, people to turn to technology-based businesses and consequently increase demand. As one of the returns of the increasing demand, the customer potential that will increase with the formation of feedback will positively affect the enterprises in the booking and marketing point with the introduction of this technology. Companies that keep pace with technology and are constantly in follow-up will prevent non-technology enterprises and lead the tourism industry by creating sector competition (Durmaz, Bulut, & Tankuş, 2018, p. 38).

Due to the nature of virtual reality applications, it is valuable to promote tourism. Because tourism is based on discovering new places and getting new experiences. Hotels, casinos, theme parks, special events or virtual sea cruises can be revived to provide a better feeling and impression of what the customer has purchased. Virtual reality systems can exert tremendous persuasive power and provide a lucrative opportunity to successfully market a property that is currently in use in the tourism sector (Demirezen, 2019, pp. 7-8).

#### 4. Methodology

The aim of this study is to determine the profile of the articles on virtual reality in Turkey. In addition, the use of virtual reality technology in tourism has been examined and recommendations have been developed for the use of this technology in tourism. In the relevant literature, there are limited studies revealing bibliographic profile of the concept of tourism and virtual reality. The results of this study will be useful for the creation of future scientific studies on virtual reality. For this purpose, the following problems are sought.

- How are the articles distributed according to ULAKBİM databases?
- How are the research disciplines of articles distributed?
- What is the distribution of the publication years of the articles?
- How are the research methods of the articles distributed?
- What are the data collection techniques used in the research articles in the database?
- What are the analysis methods used in the research articles in the database?
- How many authors do articles have?
- What are the research topics of the articles?

In this study, the concept of virtual reality, virtual reality and tourism and virtual reality in tourism, title, keyword and summary sections were searched and a total of 242 articles were found in the ULAKBİM database. As a result of the review of 242 articles, 159 articles were excluded from the study due to the lack of data on virtual reality, virtual reality and tourism and virtual reality in tourism. In addition, it was found out that 10 articles were uploaded in English and Turkish languages separately. In line with this, 10 articles were excluded from the study and bibliometric analysis was performed on 73 articles published in ULAKBİM between 1996-2019. Microsoft Excel program was used for the analysis of the articles. Within the scope of the analysis of the articles, 10 columns were created in the Microsoft Excel table. These columns included the database containing the articles, the name of the article, the journal in which the article was published, the number of authors, the discipline, subject, research method, data collection technique, and data analysis technique of the article. The articles were examined one by one and processed into the Microsoft Excel table, and the results of the bibliometric analysis were evaluated by creating graphics and tables.

#### 5. Findings

In this section, findings related to the problems of the study and their comments are given.

##### 5.1. Distribution of Articles According to Databases

The articles related to virtual reality in ULAKBİM are distributed according to the databases as shown in Figure 1.

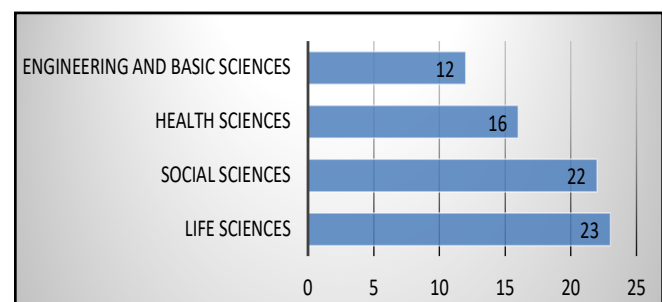


Figure 1. Distribution of Articles by Databases

23 (31.5%) articles in the life sciences database, 22 (30.1%) articles in the social sciences database, 16 (21.9%) articles in the health sciences database, and 12 (16.4%) articles in the engineering and basic sciences database. It is seen that virtual reality studies are extensively included in the life sciences and social sciences database.

5.2. Distribution of Articles by Research Disciplines

The distribution of articles related to virtual reality in ULAKBİM according to research disciplines is shown in Figure 2. The most published research discipline is educational research discipline with 16 articles. Medical research discipline ranks second with 8 articles and communication research discipline ranks third with 7 articles. The number of articles published in other research disciplines is close to each other. It was determined that the studies were mostly in the discipline of education. In addition, it was determined that only one study took place in the discipline of tourism.

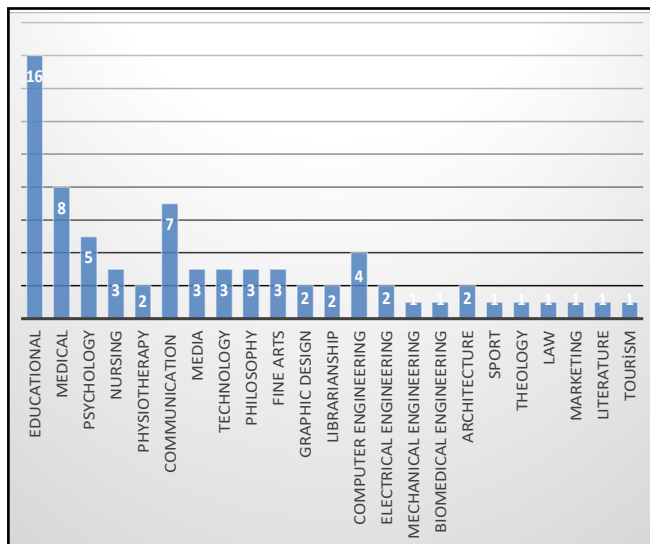


Figure 2. Distribution of Articles by Research Disciplines

5.3. Distribution of Articles Based on Publication Years

The distribution of the articles related to virtual reality in ULAKBİM according to their publication years is given in Figure 3. 2017 was the most published year with 16 articles. The number of articles published after 2012 increased in general.

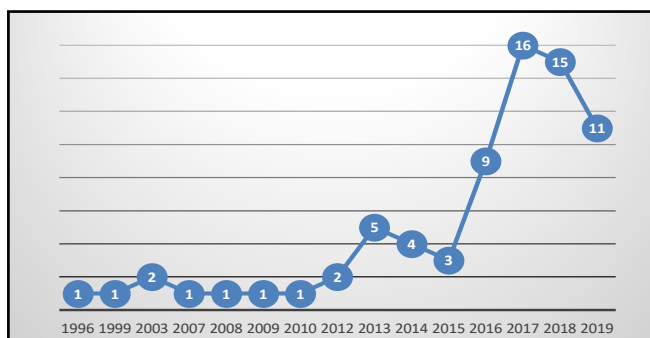


Figure 3. Distribution of Articles by Years

5.4. Distribution of Articles According to Methods Used

The articles related to virtual reality in ULAKBİM are distributed according to research methods as shown in Figure 4. Qualitative research method is used in 54 of the articles, while it is seen that the quantitative research method is used in 17 of the articles. Mixed research method was used in 2 of the articles. It is seen that 20 articles and the most frequently used qualitative research methods are in the life sciences database. It was found that the database containing the most widely used articles in quantitative research method is the database of engineering and basic sciences with 6 articles.

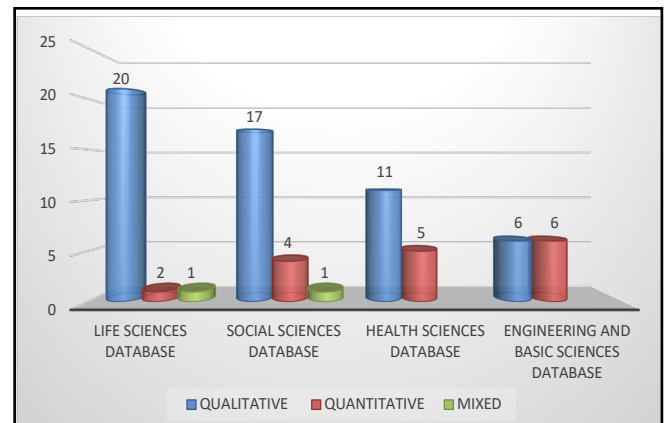


Figure 4. Distribution of Articles by Research Methods

5.5. Data Collection Techniques Used in the Articles

The data collection techniques of the articles related to virtual reality in ULAKBİM are distributed as shown in Figure 5. When the analysis techniques used in the researches of the articles in the ULAKBİM database are examined, it is seen that the most commonly used data collection technique is the source scanning technique used in 25 articles. Another commonly used data collection technique is the questionnaire technique used in 14 articles. The least used data collection techniques are the data collection techniques that use surveys and interviews as well as resource scanning and observation. Other data collection techniques are found to be close to each other.

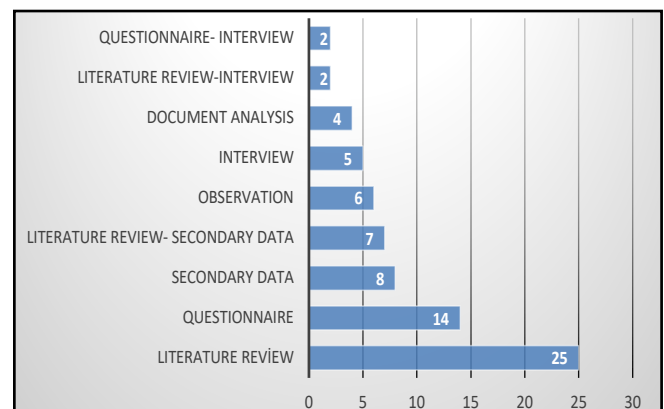


Figure 5. Distribution of Articles According to Data Collection Techniques

### 5.6. Analysis Methods Used in Research Articles

The distributions of articles related to virtual reality in ULAKBİM database according to the analysis methods used in their research are given in Figure 6. Descriptive analysis, which is one of the qualitative research analysis methods used in 26 articles, is the most widely used analysis method.

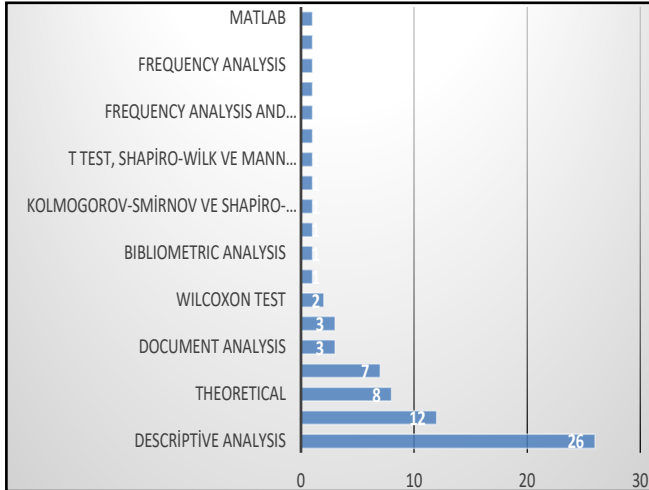


Figure 6. Distribution of Articles by Data Analysis Methods

### 5.7. Count of the Authors in Articles

When the number of authors is examined in articles on ULAKBİM virtual reality, the distribution shown in Figure 7 is reached. 30 (41.1%) of the articles were single authors. 26 (35.6%) of them had two authors. 58 articles had co-authors. Therefore, it was found that the articles were usually written by co-authors. However, the number of articles with a single author constitutes a very large proportion.

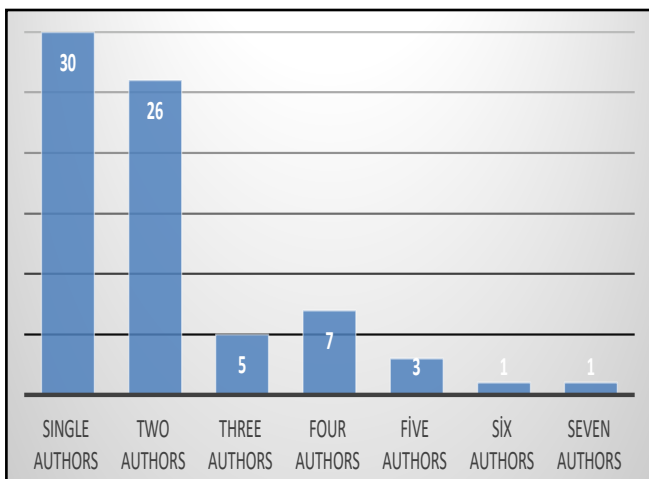


Figure 7. Distribution of Articles by Number of Authors

### 5.8. Research Topics of Articles

The research topics of the articles on ULAKBİM on virtual reality are shown in Table 1. 20 different subjects related to virtual reality have been studied. Among these topics, the most studied subject is virtual reality in education. The issue of virtual reality in medicine is noteworthy among articles.

Table 1. Distribution of Articles by Research Subjects

| Articles Topics                               | n         |
|---|-----------|
| Virtual reality in education                  | 16        |
| Virtual reality in medicine                   | 8         |
| Virtual reality and technology                | 8         |
| Virtual reality in engineering                | 5         |
| Virtual reality and rehabilitation            | 5         |
| Virtual reality applications in communication | 4         |
| Virtual reality and learning environments     | 4         |
| Virtual reality and media                     | 4         |
| Virtual reality in art                        | 3         |
| Marketing and virtual reality                 | 3         |
| Virtual reality and cinema                    | 2         |
| Violence problem and virtual reality          | 2         |
| Virtual reality in librarianship              | 2         |
| Virtual reality and literature                | 1         |
| Virtual reality and philosophy                | 1         |
| Virtual reality and tourism                   | 1         |
| Virtual reality and sports events             | 1         |
| Scale adaptation                              | 1         |
| Virtual reality and astronomy                 | 1         |
| Virtual reality and cultural heritage         | 1         |
| <b>Total</b>                                  | <b>73</b> |

## 5. Conclusions and Recommendations

Virtual reality technology is an effective concept that allows to change the laws of time, scale and physics. Thanks to this technology, which increases the interaction between human and computer, it has moved the designer from the two-dimensional world of mouse, keyboard and monitor to three-dimensional worlds where naturalness and intuition are at the forefront of the design (Zafer, 2007, p. 17).

The concept of virtual reality, which has been used frequently in medicine, architecture, engineering, education and many other fields, is progressing towards being a concept that can be used by businesses in the market in the competitive sector in which human relations are intense. As a result of the literature review, the contributions of virtual reality technology to the field of tourism were determined. In this context, rapid adaptation of this technology to the tourism sector is expected to be beneficial.

In this study, a bibliometric analysis was conducted to investigate the scientific articles on virtual reality, which was published in ULAKBİM. In addition, the use of virtual reality technology in tourism has been investigated. As a result of the study, the profile of the articles related to virtual reality was revealed. According to the data examined within the scope of the research; The distribution of articles related to virtual reality in ULAKBİM according to the databases were found to be mostly in the life sciences and social sciences databases. When the

distribution according to the research disciplines was examined, it was found that 23 different disciplines were studied. When the publication years of the articles related to virtual reality in ULAKBİM were examined, it was concluded that virtual reality has been studied in various research disciplines since 1996. In recent years, it has been determined that virtual reality is an important field of study for research disciplines and the studies are mainly carried out with qualitative research methods.

Among the articles related to virtual reality published in ULAKBİM, one article was found to be in the discipline of Tourism. When the benefits of virtual reality technology to tourism discipline are taken into consideration, all destinations, every business in the tourism area, museums etc. should adopt this technology. Accordingly, publications in the field are considered to be insufficient. Therefore, it may be suggested that tourism researchers in universities work in this field. Moreover, it is thought that the use of this technology in tourism education will contribute to the training of experienced individuals for the tourism sector.

The results of the research show that quantitative research methods are less used in scientific researches. It is clear that focusing on experimental studies in scientific researches in the field of social sciences will contribute to the use of virtual reality technology. This research covers only the articles in ULAKBİM. In the following researches, other databases can be examined to determine whether these results are similar. In addition, international publications can be examined and comparisons can be made.

Another suggestion for the tourism sector is that tourism should keep up with technological developments like other sectors. Otherwise, tourism activities will lose their attractiveness. Since technology provides many conveniences and benefits, it creates a sense of attraction and increases preference rates among people. Virtual reality technology also creates attraction for all stakeholders in tourism and meets interest, curiosity, desires and needs. Therefore, from the moment when the virtual reality technology in tourism activity is started to the end of the tourism activity, tourism enterprises, destinations, museums etc. are provided many benefits to attract places, tourists and everyone in tourism, so the use of virtual reality technology is very important in tourism. It is an innovation that will change tourism in the future and the tourism sector and people must act in accordance with this innovation.

Businesses that keep up with technology will prevent businesses that are not exposed to technology and become a leader in the tourism industry by creating industry competition. Concentration of tourism companies to virtual reality will increase competition in this sector, where human relations are intense, as well as positively affecting the efficiency of businesses in the market and profit maximization.

This technology can be used as a concept that can be used in tourism businesses and can be used in many institutions. The use of virtual reality technology will enable companies with continuous development to create customer satisfaction as they offer this technology to their customers. The rapid development of virtual reality will allow people to travel virtually to the destinations they want to see even to the Moon, planets or stars while sitting in their homes.

## References

- Aktamış, H. & Arıcı, V. A. (2013). Sanal Gerçeklik Programlarının Astronomi Konularının Öğretiminde Kullanılmasının Akademik Başarı ve Kalıcılığına Etkisi. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 9 (2), 58-70.
- Altınpulluk, H. (2018). Türkiye'de Arttırılmış Gerçeklikle İlgili Hazırlanan Tezlerin Bibliyometrik Analiz Yöntemiyle İncelenmesi. *Eğitim Teknolojisi Kuram ve Uygulama*, 8 (1), pp. 248-272.
- Arat, T. & Baltacıoğlu, S. (2016). Sanal Gerçeklik ve Turizm. *Selçuk Üniversitesi Sosyal Bilimler Meslek Yüksekokulu Dergisi*, 19 (1) 103-118.
- Coleman, B. & Bilge, E. (2012). *Hello Avatar: Dijital Neslin Yükselişi*. (Trans: E. Bilge). Ankara: MediaCat Kitapları.
- Demirezen, B. (2019). Arttırılmış Gerçeklik ve Sanal Gerçeklik Teknolojisinin Turizm Sektöründe Kullanılabilirliği Üzerine Bir Literatür Taraması. *Uluslararası Global Turizm Araştırmaları Dergisi*, 3 (1), 1-26.
- Derman, E. (2012). *360 Derece Panoramik Sanal Tur Uygulaması: Dumlupınar Üniversitesi Örneği* (Unpublished Masters Thesis). Kütahya: Dumlupınar University Graduate School of Social Sciences.
- Deryakulu D. (1999). *Çağdaş Eğitimde Yeni Teknolojiler*. Eskişehir: Anadolu Üni. Açıköğretim Fakültesi Yayınları No: 1021,67-86.
- Durmaz, C., Bulut, Y. & Tankuş, E. (2018). Sanal Gerçekliğin Turizme Entegrasyonu: Samsun'daki 5 Yıldızlı Otellerde Uygulama. *Turkish Journal of Marketing*, 3 (1), 32-49.
- Ekici, R. & Güven, A. (2017). Sanal Gerçeklik Teknolojisinin Turizm Endüstrisindeki Rolü. *Avrasya Bilimler Akademisi Sosyal Bilimler Dergisi*, pp. 406-408.
- Kanak, A., Erdoğan, A.Y. & Yılmaz, B.C. (2018). *Yemek Taksonomisi ile Zenginleştirilmiş bir Sanal Gerçeklik Uygulaması*. In Proceedings of Signal Processing and Communications Applications Conference (SIU), İzmir 1-4.
- Karasar, Ş. (2004). Eğitimde Yeni İletişim Teknolojileri İnternet ve Sanal Yüksek Eğitim. *The Turkish Online Journal of Educational Technology*, (4) 117-125.
- Kayabaşı, Y. (2005). Sanal Gerçeklik ve Eğitim Amaçlı Kullanılması. *The Turkish Online Journal of Educational Technology*, 3 (4), 151-158.
- Koçer, A. & Uzunsakal, L. (2015). *Akdeniz Üniversitesi Gerçek Panoramik Fotoğraflarla Kampüs Gezintisi*. XVII. Akademik Bilişim Konferansı, Eskişehir.
- Kurbanoğlu, S.S. (1996). Sanal Gerçeklik, Gerçek mi, Değil mi. *Türk Kütüphaneciliği*, 21-31.
- Kuruüzümcü, R. (2007). Bir Digital Ortam ve Sanat Formu Olarak Sanal Gerçeklik. *Sanat Dergisi*, 93-96.

McBurney, M. K.; Novak, P. L. (2002). *What is bibliometrics and why should you care?* Proceedings of the Professional Communication Conference, 108-114.

Pimental, K. & Teixeira, K. (1993): *Virtual Reality Through the New Looking Glass* (2nd Ed.). London: McGraw-Hill.

Tepe, T., Kaleci, D. & Tüzün, H. (2016). *Eğitim Teknolojilerinde Yeni Eğilimler: Sanal Gerçeklik Uygulamaları*. 10th International Computer and Instructional Technologies Symposium (ICITS). Rize. 547-555.

Warwick, K., Gray, J. & Roberts, D. (1993). *Virtual Reality In Engineering*. The Institution of Electrical Engineers, Printed in England by Short Run Press, 1-26.

Yair, Y. (2001). 3D-Virtual Reality in Science Education: An Implication for Astronomy Teaching. *Journal of Computers in Mathematics and Science Teaching*, 20, pp. 293-294.

Zafer, D.Z. (2007). *Mimari Tasarım Sürecinde Sanal Gerçeklik Teknolojilerinin Etkisi* (Unpublished Masters Thesis). Eskişehir: Anadolu University Graduate School of Social Sciences.



**Altan Çetin** completed his primary and secondary education in Alanya/Antalya. His undergraduate education is on Tourism and Hotel Management. He received his master's degree in the department of tourism management at Anadolu University. Çetin, who has studies on destination image, continues his doctorate education in tourism management at

Anadolu University.

ORCID ID : 0000-0002-4271-4760



**Nesrin Savaş** is a PhD student in the department of tourism management at Anadolu University. She received her master's degree and bachelor's degree in the department of tourism management at Ataturk University. She is currently working as a lecturer in the department of Hotel, Restaurant and Catering Services at Dicle University. Her research interest

includes marketing, local food and beverage.

ORCID ID : 0000-0002-5131-5550



**Gökçe Yüksek** is an associate professor at Anadolu University, Faculty of Tourism. She holds a PhD in tourism management. She specializes in destination marketing, tourism transportation, and hospitality management. She also studies cultural tourism and sustainable tourism. Dr. Yüksek is an author of a number of articles and book chapters dealing with destination

marketing, CRS in tourism, and alternative tourism.

ORCID ID : 0000-0002-1010-8694



**Mustafa Coskuner** completed his primary and secondary education in Aksaray. His undergraduate education is on English teaching. He received his master's degree in the department of travel management and tourism guidance from Selçuk University. Coskuner, who has studies on touristic products and destination marketing, continues his PhD in the

department of tourism management at Anadolu University.

ORCID ID : 0000-0003-3032-1836