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The bibliometric journey of IJATE from local to global

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Abstract: *International Journal of Assessment Tools in Education* (IJATE) is one of the educational journals that is indexed in major worldwide databases such as Web of Science (WoS) and ERIC. This study presents the bibliometric characteristics of articles published in IJATE between 2014 and 2021 through the bibliometric analyses. Harzing's "Publish or Perish software" was used to collect citation data from WoS and Google Scholar databases as a tool to analyze the impact of articles. Firstly, when contributing institutions are analyzed, especially in recent, it is seen that researchers from countries such as France and Kuwait have been contributing to the journal with publications produced through international collaboration. Moreover, when the average citation numbers per article is calculated, it is understood that Australia (13) and Canada (3.5) are the countries that contribute significantly to the visibility of the journal. Such a trend will contribute significantly to the international recognition of the journal soon. On the other hand, there is a statistically significant positive relationship ($r=0.339$; $p<0.01$) between usage count and the number of citations by WoS. Our results reveal that while the number of references used in the articles was in consistent with the literature, the average article title lengths (12±3) were slightly longer than the ideal length (10±3). The results will provide important contributions to editors, reviewers, and authors in the journey of IJATE from local to global. The findings can guide authors, the editors and referees and also serve as a potential roadmap for the future studies and journal.

1. INTRODUCTION

Scholarly journals play a crucial role as one of sciences official communication languages in the process of revealing, disseminating and using knowledge (Hicks, 2012). Nowadays, they have become more prominent as a widely used communication tool due to reasons such as internationalization in the field of education, rapid development of the field's relations with other disciplines over time and developments in information technologies (Aman & Botte 2017; Aktaş & Karamustafaoğlu, 2022; Budd & Magnuson, 2010; Goodyear et al. 2009; Orbay et al. 2021).

Developments in information technologies have made it possible to access information easily and economically, and the information that can be accessed has increased exponentially over time (Fire & Guestrin, 2019). The competitive environment created by the increasing number

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of journals has brought along the idea of "publish or perish!" among researchers and also questions of "quality or quantity?" in conducted studies (Civera et al., 2020; Van Dalen, 2021). Therefore, understanding the characteristics of journals and publications, tracking publications, and analyzing journals are essential for understanding the present and making inferences about the past and the future. In this context, analyzing the journals with various mathematical and statistical techniques is widely used as a quality measurement tool (Donthu et al., 2021). Bibliometric analysis is the leading methods used to measure the contribution of journals to the field of science (Pritchard, 1969).

Web of Science (WoS), The Educational Resource Information Center (ERIC) and Scopus are the main databases used for bibliometric analysis of publications published in journals accepted in the field of education in academic platforms (Pranckutė, 2021). On the other hand, in the field of education, the social conditions, political and cultural climate of the region in which the country lives are taken into consideration (Özenç Uçak & Al, 2008). Therefore, journals published by countries in the field of education are evaluated in some national databases created using various criteria. The TRIndex, which is also used in academic promotions in Turkey, is one example of a database that includes national journals in the field of education (HUIC, 2022).

“International Journal of Assessment Tools in Education (IJATE)- e-ISSN: 2148-7456”, which started in 2014 as open access in the educational research field in Turkish and English languages, is one of the journals that contributed to the field by being indexed in many national and international indexes (IJATE, 2022). IJATE started its academic publishing life as two issues a year, and since 2018, it has been published as four issues a year and only in English. Researchers are not charged for article evaluation or publication processes in the journal. Studies submitted to the journal are subjected to double-blind peer-review and peer evaluation. The main purpose of the journal is to bring together the studies focused on measurement and evaluation carried out at all levels of education with the relevant stakeholders. Since 2014, IJATE has been published on the DergiPark platform, which provides electronic hosting and editorial process management services for academic refereed journals (ULAKBIM, 2022). In this context, it has come a long way from local to global by being indexed in many national and international indexes such as TRIndex in 2016, Emerging Sources Citation Index (ESCI) under WoS in 2017, and ERIC in 2018.

In this study, the articles published in IJATE between 2014 and 2021 were examined by the use of bibliometric analysis and answers were sought to the following research questions (RQ):

RQ1: How do the article numbers and authors change over the years? Which institutions are the most productive? What is the international contribution to the journal and collaboration between countries?

RQ2: Is there any relationship between the usage count of articles in WoS and the citation numbers received from WoS and Google Scholar (GS) databases?

RQ3: Which keywords are commonly used in the articles? Are they compatible with the objectives of the journal?

RQ4: What are the journal quartiles of the most cited journals in the journal and the journals that cite the journal the most?

RQ5: How does the number of references used in the articles change over the years? Are the title lengths consistent with international literature?

2. METHOD

In this study was used bibliometric analysis technique. There are a total of 247 documents published in IJATE and indexed in WoS from 2014 to 2021, including 233 articles, 8 editorial materials and 6 reviews. Of these documents, editorial materials were not included in the

evaluation. In the evaluation process carried out by means of the bibliometric analysis, 239 studies constituted the study sample. These studies will be referred to as "article" hereafter. The tag information and content analysis of the articles were carried out with the data obtained from the WoS database.

As is well known, the "*Publish and Perish software*" can be used as an analysis instrument of the impact of the research by analyzing the citations (Harzing, 2007). Thus, it was used to determine the citation numbers. In this software, WoS and GS databases were selected in accordance with the purpose of the research. Repeated citations to the relevant articles in GS databases were removed. The citation search was conducted between 01-10 October 2022.

The significance level for statistical tests was accepted as $p<0.05$ and IBM SPSS Statistics for Windows, Version 26.0, was used to analyze the data. For the analysis of collected data and illustration of the bibliometric maps of scientific relations, VOSviewer 1.6.13 was used (Van Eck & Waltman, 2010).

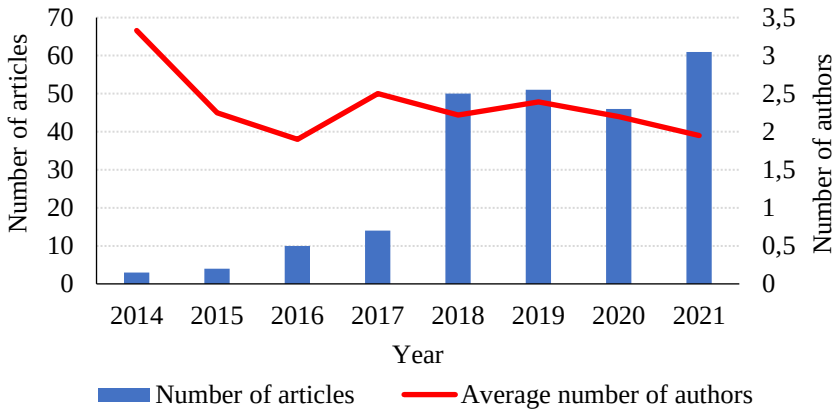
3. RESULT

The findings acquired for the study topics are provided in this part, and the interpretations are explored in the presence of relevant literature.

3.1. Results and Discussion for RQ1

The changing number of articles and authors published in IJATE by years was indicated in Figure 1. As seen in Figure 1, 239 articles were published between the years studied and the number of articles tends to increase over the years. While IJATE published a single issue in 2014 and two issues until 2017, it started to publish 4 issues in the following years. The main reason for this trend can be explained by the new start of the journal and the limited number of articles published in the first years. On the other hand, although the average number of authors per article seems to be decreasing, it was found that the median author values for all years was two (median=2), except the first year. Henriksen (2016) found that publications in educational research were written by one author during 1980-2000 and by two authors between 2001 and 2013. Similarly, the median value for authors was found to be two in the data of a journal publishing in the education field during the years 2014-2021 (Orbay et al., 2021). Therefore, the finding obtained in this study in terms of the number of authors is in harmony with the studies in the international literature.

Figure 1. *Annual distribution of articles and authors between 2014 and 2021.*



The start of the journal to be indexed in internationally recognized indexes in the education field such as ESCI in 2017 and ERIC in 2018 can be interpreted as an increasing interest in the journal. The interest brings about a positive correlation between quality and quantity of articles. One reason for this is that publishing in high impact journals that are indexed in major indexes

is regarded prestigious in academia, and it is a natural byproduct of supply and demand (Arslan et al., 2022; Huang, 2016).

A Total of 414 citations from WoS were made to the studies published in the journal between 2014 and 2021. In other words, the average number of citations per article was 1.73. However, 44.76% of these articles were not cited from WoS and 20.08% were not cited from GS. It is expected that these articles would start to receive a certain citation number in the future due to the nature of educational sciences, as the studies published in the last two years were intense (71.96% for WoS, 81.25% for GS). The number of articles, total citations and total link strength, which is seen as a measure of inter-institutional collaboration, of the ten most productive institutions were given in Table 1. It is seen that all these institutions are addressed in Türkiye. Among these institutions, articles from Anadolu and Akdeniz Universities were cited well above the average, while articles from Gazi and Ankara Universities were cited below the average of the journal.

Table 1. *The first ten institutions by total articles during 2014-2021.*

No	Institution	Number of Articles	Citations
1	Hacettepe University	34	51
2	Pamukkale University	30	69
3	Gazi University	15	4
4	Ministry of National Education	12	9
5	Ankara University	12	7
6	Anadolu University	7	49
7	Akdeniz University	5	24
8	Kilis 7 Aralık University	5	7
9	Çukurova University	5	6
10	Abant Izzet Baysal University	5	5

If the content of the journal is targeted at an international audience, it would be desirable to have an international diversity of authors who can contribute to this goal. However, when the top ten contributing institutions are analyzed, IJATE's definition of "*Globally national-locally international journal*" is evoked (Pajić & Jevremov, 2014). This definition was introduced to the journals that have few international authors or readers and relatively do not receive citations from articles published in international journals (Pajić & Jevremov, 2014). It is known that this was the case for journals with Turkey addresses in citation indexes before such a definition was introduced to the literature (Doğan, Dhyi & Al, 2018; Tonta, 2017).

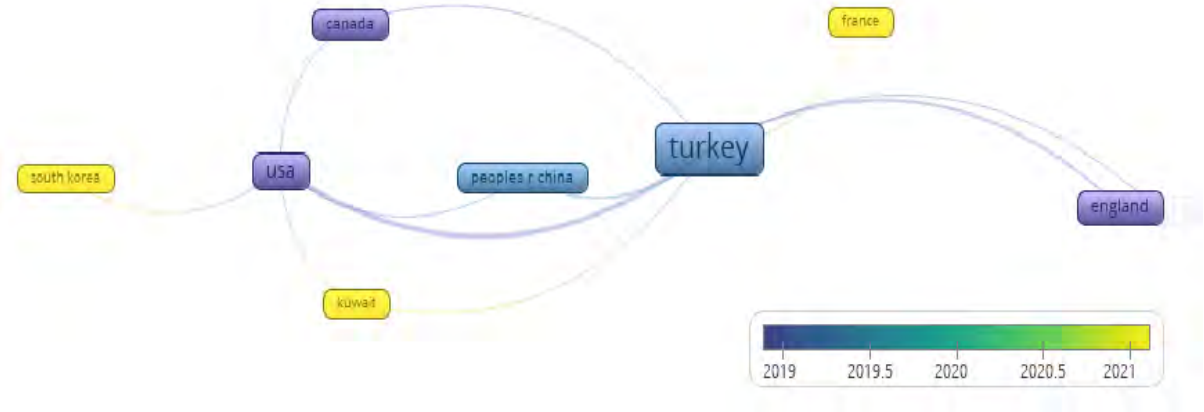
Researchers from 28 different countries have contributed to the journal so far. The article numbers, total citation numbers and Total Link Strength (TLS) values of the top ten contributing countries are given in Table 2. On the other hand, Figure 2 indicates the collaboration network of the contributing countries.

Table 2. *The most ten productive countries based on the number of articles.*

No	Country	Number of Articles	Citations	Total Link Strength
1	Turkey	190	308	17
2	USA	27	39	12
3	England	10	32	4
4	Iran	5	7	2
5	China	3	9	3
6	Australia	2	26	3
7	Canada	2	7	2
8	Ghana	2	4	0
9	Kuwait	2	2	2
10	Saudi Arabia	2	1	2

As can be seen from Table 2, when the average citation numbers per article is calculated, it is understood that Australia (13), Canada (3.5) and the UK (3.2) are the countries that contribute significantly to the visibility of the journal. The collaboration network between the contributing countries is displayed in Figure 2. Especially in recent years, it is seen that researchers from countries such as France, South Korea and Kuwait have been contributing to the journal with publications produced through international collaboration. Such a trend will contribute significantly to the international recognition of the journal soon.

Figure 2. *Overlay visualization map for the collaboration among countries.*



3.2. Results and Discussion for RQ2

The number of "Usage Count (UC)" is used as a level of interest shown by researchers in an article indexed in the WoS database (Wang et al., 2016). This criterion shows how many times the article has been read from the publisher's website directly or via the open URL, or how many times the article has been saved for use in the researcher's library. In this study, the correlation coefficient was calculated to reveal the relationship between UC and WoS and GS citations of each article. Before the analysis, the descriptive statistics results were calculated for all three data sets, and it was seen that the data did not show a normal distribution. Therefore, the Spearman correlation value between UC and the citations received by the article was calculated and indicated in Table 3.

Table 3. *Spearman Correlation Matrix among some bibliometric indicators.*

Bibliometric indicators	A	B	C
A Usage Count	1	*0.339**	*0.378**
B WoS Citation		1	*0.754**
C GS Citation			1

*Significantly correlated when the significance level is set at 0.01 (two-tailed).

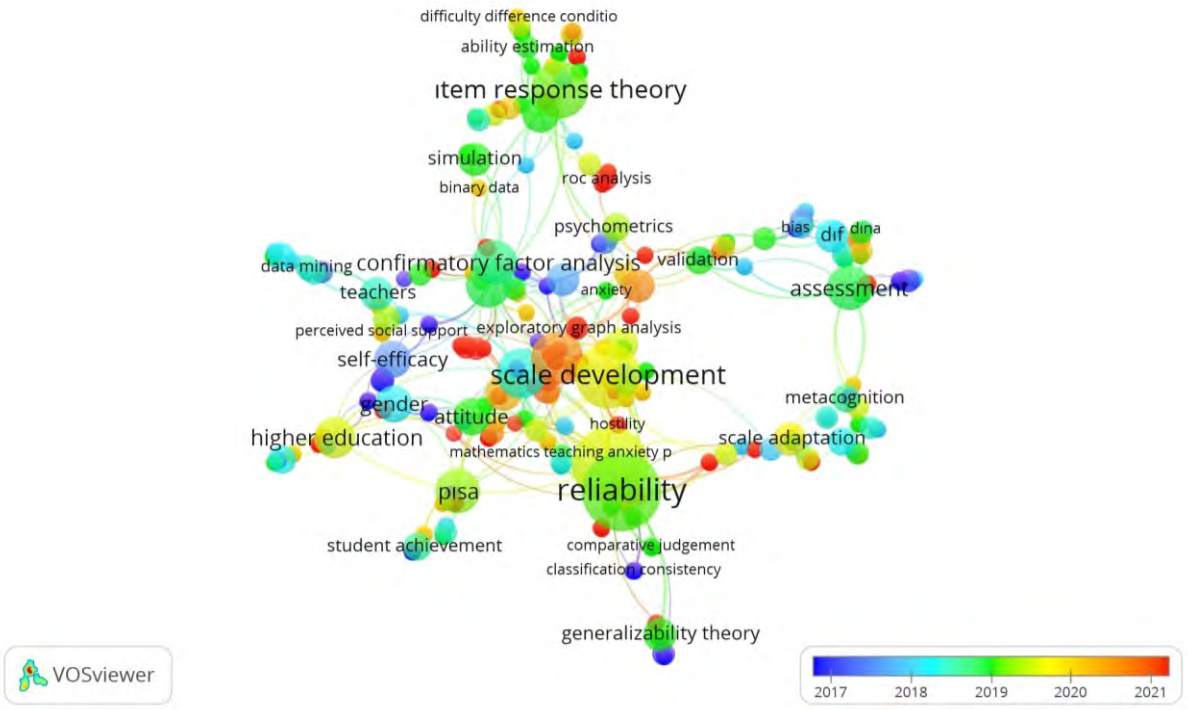
Table 3 shows that there is a statistically significant positive correlation (*r=0.339*) between UC and the number of citations by databases. In a similar vein, Nemati-Anaraki et al. (2019) found the relationship between UC and WoS citations at *r=0.401*. Furthermore, from the data obtained, a highly significant positive relationship (*r=0.754*) between WoS and GS citations is noteworthy. Martin-Martin et al. (2018) pointed out that the scope of the GS database is very wide, including the WoS database (95%), and found that almost half of the citations are from documents outside the journal. They emphasized that most of these citations were not in English. On the other hand, they found a very strong correlation of 0.92 between citations in WoS and GS databases when the category of educational research was considered.

3.3. Results and Discussion for RQ3

A total of 803 keywords were used published articles in the journal. The number of keywords used more than once is 85, meaning about 90% of the keywords were used only once. It is possible to see similar findings in the related literature (Chuang et al. 2007; Dong et al., 2012). Three main reasons for this case are taken into account as follows; *i)* the target audience of the journal is wide, but the number of articles is still limited, *ii)* some of the keywords suggested in the articles are very general concepts (design, proof, error, etc.), and *iii)* some of the keywords in the articles are acronyms or abbreviations specific to that article (MIMIC, PPSE P10, RSS, etc.).

An overlay visualization map for all keywords used in the articles is indicated in Figure 3. The circle sizes in the figure represent the frequency of use of the keywords. The five most frequently (*f*) used keywords are reliability (*f=22*), validity (*f=21*), scale development (*f=15*), item response theory (*f=12*) and measurement invariance (*f=10*). It can be stated that each keyword that emerged is fully compatible with the journal.

Figure 3. *Overlay visualization map of relationship among the most frequently used keywords.*



3.4. Results and Discussion for RQ4

The ten most cited and citing journals in IJATE with their active journal quartiles in WoS are indicated in the Table 4. As journals can be included in more than one category within WoS, optimistic mode was used in journal quartiles (Liu, Hu & Gu, 2016; Orbay et al., 2020). Within the coverage of WoS, a total of 414 citations were made to the journal, and it is seen that these were cited from high impact journals (Q1 & Q2). At the meantime, when the total number of citations is considered, it is understood that it has been cited by many different journals. This can be interpreted as the first sign of the recognition of the journal in the international literature. On the other hand, when the sources used by the articles published in the journal within the scope of WoS are examined, it is seen that high impact journals unique to the field are cited.

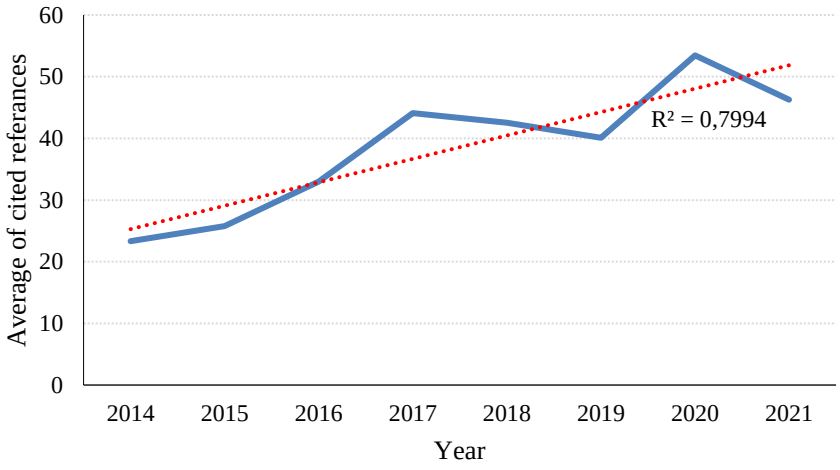
Table 4. *The most cited and citing journals in IJATE and their active journal quartiles in WoS.*

	Cited Journal in WoS			Citing Journal in WoS		
No	Journal	Active Quartile	Total Cited	Journal	Active Quartile	Total Citing
1	Front Psychol	Q1	7	App Psych Meas	Q3	70
2	Int J Assess Tools E	ESCI	7	Struct Equ Modeling	Q1	70
3	Sustainability	Q2	6	Educ Psychol Meas	Q1	54
4	Think Skills Create	Q1	3	Psychometrika	Q2	38
5	Educ Inf Technol	Q1	2	J Educ Meas	Q3	37
6	Educ Sci	ESCI	2	App Meas Educ	Q3	28
7	Eurasian J Educ Res	ESCI	2	Psychol Methods	Q1	26
8	IEEE Access	Q2	2	Egit Bilim	Q4	24
9	Nurs Educ Today	Q1	2	Pers Indiv Differ	Q2	18
10	Res Pap Educ	Q3	2	J Meas Eval Educ Psy	ESCI	17

3.5. Results and Discussion for RQ5

The change in the number of cited references in the issued articles in the journal through 2014-2021 is indicated in Figure 4. The average cited reference numbers started from 23.33 in 2014 and reached 44.24 in the period studied. Moreover, it was observed that the number of cited references tended to increase gradually ($R^2=0.799$). This is completely in line with the trend in all education categories in the WoS database (Sezgin et al., 2022).

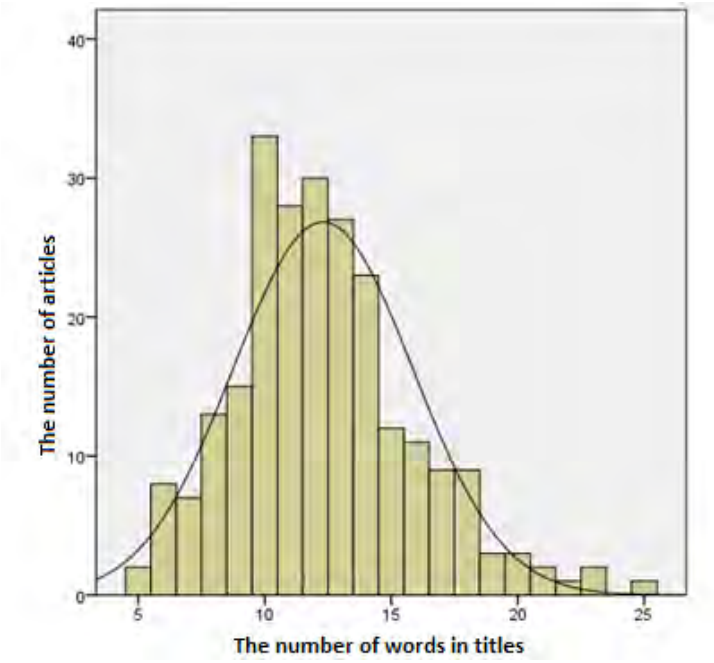
Figure 4. *The average of cited references in the issued articles through 2014-2021 annually.*



Many researchers often look at the title of an article to decide whether it is relevant to their studies or not. Hence, the first impression that the article title creates in the reader plays a major role whether the article will be read or not. Thus, the title is extremely important as it provides the most basic information about the content of the article (Hartley, 2008; Harzing, 2022). Letchford, Moat & Preis (2015) analyzed the 20.000 most cited articles published between 2007 and 2013, and found that articles with short titles received a higher number of citations. The reasons for this relationship are as follows: journals with high impact factors limit the word numbers in the title; new research on emerging topics has longer titles and is published in less prestigious journals due to the need for more explanation; short titles are easier to read and understand, and therefore, attract the reader more (Letchford, Moat & Preis, 2015).

Based on the obtained data, the article titles published in IJATE were analyzed. The mean value of the number of words in the titles was 12.33 (*median=12; sd=3.554; skewness=0.627; kurtosis=0.659*), and thus, it was identified that minimum 5 and maximum 25 words were used in the titles. It is understood that these values fit the normal distribution as seen in Figure 5. However, 10±3 is recommended for optimized article title length in the international literature (Elgendi, 2019).

Figure 5. *Title length distribution of articles published in IJATE.*



4. DISCUSSION and CONCLUSION

The outcomes reached by evaluating the publication performance of IJATE between 2014 and 2021 and the widespread impact of these publications are presented below.

The change in the number of authors, which is accepted as a measure of collaborative works in the field of education, is in consistence with the international literature. The international popularity of the journal has increased as listed in prestigious indexes and publishing the works of researchers from different countries. In the first years of the journal, its local appearance started to transform into a global one over time.

Recently, the use of online databases in academic publishing affects the widespread impact of articles, in other words, the number of citations they receive. This effect has made a significant positive contribution to the visibility of articles published in IJATE in the context of WoS.

It was concluded that the scope of the journal and the articles published were in complete harmony. However, it was found that the keywords of some articles were not selected in a desirable quality. On the other hand, it was concluded that the journals cited by IJATE or the journals citing by IJATE were varied.

It was found that the number of references used in the articles tended to increase in parallel with the international literature. However, it was concluded that the average title length of the articles was slightly longer than the ideal title length in the relevant literature.

Based on the discussion and conclusions, the following recommendations were provided.

- Researchers from the USA, Anglo-Saxon, and Continental European countries, which are prominent in the field of education both in terms of article productivity and the widespread impact of articles, should be encouraged to publish articles in the journal.
- Interactive applications can be developed for the visibility of articles on social academic networking sites such as Academia, ResearchGate and Linkedln, which will be established specifically for IJATE, to increase the positive significant relationship between the usage count of articles and the number of citations they receive.
- During the manuscript evaluation process, editors and/or referees should provide necessary guidance to authors by considering international trends for article titles and keywords.

Finally, it is thought that these suggestions will provide guidance to editors, reviewers and authors. Therefore, what has been done so far in IJATE should be a starting point to improve the current situation.

4.1. Limitations

There are a few limitations of this study, notwithstanding several crucial contributions. For one, bibliometric indicators based on the number of citations are time-dependent indicators and may change over time. Secondly, WoS and GS databases were used in the citation search and the study did not control for self-citations.

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Declaration of Conflicting Interests and Ethics

The authors declare no conflict of interest. This research study complies with research publishing ethics. The scientific and legal responsibility for manuscripts published in IJATE belongs to the authors.

Authorship Contribution Statement

Orhan Karamustafaoglu: Conceptualization, methodology, investigation, formal analysis, writing–original draft. **Metin Orbay:** Methodology, formal analysis, writing – review & editing. **Izzet Kara:** Formal analysis, review & editing.

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