

The use of the English language in academic publishing by researchers from the laboratory of “Water Use Efficiency in Agriculture” of the National Higher School of Agriculture- Algiers

Usage de la langue anglaise dans les publications académiques des chercheurs du laboratoire "Maîtrise de l'Eau en Agriculture" de l'Ecole Nationale Supérieure d'Agriculture - Alger

Dalila Laddada ¹

¹ Assistant professor A. Department of Library and documentary science. University of Algiers, Dalila.laddada@univ-alger2.dz

Received: 30/ 11/ 2022 Accepted: 28/ 02/ 2023 Publication date: 06/30/2023

Abstract:

This paper reports an investigation about the use of English language by Algerian researchers while writing and publishing their works.

The study uses the bibliometric method of research to examine the productivity of researchers from "the laboratory of Water Use Efficiency in Agriculture" at the " National Higher School of Agriculture" during the period 2016/2020.

The results show that 4/5 scientists publish their works in English and were referred to at a rate of nearly four citations per article, higher than those published in French. They relied heavily on English-language sources, highlighting their control over high quality English language sources.

Corresponding author: Dalila Laddada

Email: Dalila.laddada@univ-alger2.dz

The subjects of this study work with foreign peers from several countries, most of whom are not Anglophones, nonetheless, it did not affect the pace of production in English, not even the percentage of references used. However, it was observed that they had a tendency to publish in Anglophone journals.

Keywords:

English language. Scientific research. Scientific publishing.

Collaborative Publishing. Citation. Bibliographic references

Résumé:

L’objectif de cet article est d’étudier dans quelle mesure les chercheurs algériens utilisent l’anglais comme langue étrangère dans leur travail académique en matière de recherche d’information, d’écriture et de publication.

La méthode analytique et bibliométrique a été retenue pour étudier la production scientifique d’un échantillon de chercheurs du laboratoire en examinant leurs publications pour la période 2016/ 2020

Les résultats ont montré que les 4/5 des articles sont publiés en anglais et qu’ils reçoivent une moyenne de 4 citations par unité supérieure à ceux publiés en français. Les chercheurs s’appuient fortement pour se documenter sur des sources de langue anglaise, ce qui démontre leur maîtrise de la langue mais également leur conscience de son rôle dans l’accès à l’information de qualité. Les membres du laboratoire collaborent avec leurs pairs étrangers de plusieurs pays, dont la majorité non anglophone sans que pour autant n’affecte le degré de production en anglais, ni même le taux des sources utilisées. Cependant Il a

été observé que les chercheurs avaient tendance à publier dans des revues anglophones.

Mots clés : Langue anglaise. Recherche scientifique. Édition scientifique. Édition collaborative. Citation. Références bibliographiques.

Introduction

English is currently the most widely used language in the world, it is spoken by more than 1452 million speakers as a first and second language,¹ and it is the only language spoken by foreigners more than by natives, and what has increased the strength of its worldwide presence on all continents is that it is spoken by about 63 countries and territories.² For historical and other circumstantial reasons, english has conquered many fields as it is the most spoken language in international meetings and several other sectors. This is what incited many countries to include and employ it, particularly in strategic fields such as education and scientific research. Researchers played an important role in promoting it by adopting and working with it, as it is a necessary and required language for research and the only language that accurately expresses the results of science. These scientists consider it the most appropriate tool for communicating research outputs, to eventually be the common denominator at the international level in everything related to scientific exchanges and communication, and a common language or a Lingua franca for science and scientists until it was said, "Science is English." As a consequence, the recognition of the researcher's capabilities at the international level inevitably passes through publishing in English language journals that are controlled and marketed by international companies, most of

which are Anglophone and impose their logic and thus their language.

Algeria is actually not different from what other non-Anglophone countries are experiencing. The algerian researcher, like other researchers, is affected by the current trends in the field of scientific research and is similarly influenced by the trends related to the reference language used by members of the scientific community. He seeks - perhaps forced - to learn it, employ it and integrate it into his scientific projects and academic research.

In order to study the problem of English language use among Algerian scientists, we selected a sample of academic works produced by researchers belonging to the laboratory of “Water Use Efficiency in Agriculture” of the "National Higher School of Agriculture " in Algiers- Algeria. The laboratory's researchers publish the results of their works in various media. To discern the linguistic nature of their production, we studied the articles published in primary journals, in some conference proceedings, and in parts of collective works published in the form of books. To collect the data, we relied on the list of permanent researchers of the laboratory available at <https://www.ensa.dz/wp-content/uploads/2016/03/CDC-LMEA-MARS-2016.pdf>

It was updated through the list of the school's scientific production, which is organized from the most recent to the less recent, to collect the articles written by each permanent member of the laboratory. The obtained data formed the final list under which the study has relied on.

Our study is limited to studying the quantitative and numerical aspect of the available articles only - despite the possibility of articles not included by the school's website – and

their linguistic distributions, with the aim of verifying both the languages employed in writing and the languages of sources (references) they relied on while writing the articles. To enlarge the scope of the study we also studied the relationship between cooperative production and the languages used in writing. The last part of the study concludes by addressing the nature of the journals the researchers of the laboratory relied on for publishing, their linguistic orientations, and the countries these journals belong to.

The studied period is limited to published articles between 2016 and 2020. This period seemed to us acceptable to get results that may explain part of our preoccupation.

The aim of this study is to get results that can be evaluated through scientific indicators and be projected on other universities or institutions.

The problem of English language use and its dominance of the world scientific communication has attracted the attention of many specialists. Considering the risks associated with it, it was considered among the problems requiring study and research. The problem has been identified in our work through the following main question:

What is the reality of the use of English language in the Algerian scientific community and what are its effects on the dynamics of scientific research?

To answer this question, additional complementary questions were necessary:

- Is the Algerian researcher aware of the role of the English language in publishing and does he work with it?
- Is the scientific research published in English by Algerian researchers more visible and thus cited by other researchers?

- What are the languages of the references used?
- Does collaboration with foreign authors affect the language of publishing?

To answer these questions, we started from a single hypothesis which is that Algerian researchers, like many of their foreign peers, publish their academic works in English, seeking for gratitude and visibility, despite the fact that their educational environment and research work is done in other languages.

Method

To answer the research questions, we relied on a method that seemed appropriate to us and in line with the requirements and nature of the work. Thus, we relied on a dual method that combines the analytical method, based on bibliometric method of research to diagnose the problem by examining the nature of the published scientific production of the researchers of the laboratory by studying the produced articles and the literature relied upon in terms of its linguistic distribution and the role of foreign partnership in its linguistic orientations, and the descriptive method based on field observation and statistical studies of the linguistic distributions of the articles under study.

Results and Discussion

Intellectual Productivity of the

Total number of titles	The number of duplicate titles	Number of titles without references	Number of titles selected
139	32	24	83

Table 1: Overall number of articles published from 2016 to 2020

We determined in advance and voluntarily in our work to study only the articles published in the resources that we mentioned above. Their number according to the laboratory list is 139 article. However, we found through the process of sorting and surveying that there are a significant number of articles that are mentioned in the lists more than once, which necessitated their deletion, and we counted 32 deleted paper.

This work is not limited to studying the language of scientific articles only, but it goes further to the sources relied on(bibliography) by each article and their linguistic distributions. We were once again obliged to exclude articles whose full text or bibliographic list is not available on Internet, and therefore we could not view their reference lists, and we numbered 24 omitted title.

This sorting eventually offered us 83 article that ultimately formed the focus of this work.

Language	Number of titles	%
English	65	78,31
French	18	21,69
Total	83	100

Table 2: Linguistic distribution of selected articles

Analysis of Table 2 shows that the English language, because of its profits to researchers in terms of reputation and visibility, dominated the publications of the laboratory (WUEA) with 78.31% of the total articles in the studied period. This indicates the real role and position conquered by this language in the publishing process. The Algerian researcher, like his non-Anglophone counterparts, seeks to publish the results of his research in the common language of scholars, notwithstanding it

being a foreign language for him, while the French language is considered as the researcher's first language, in which he finds perhaps more comfort when publishing in it. Here it should be noted that many studies emphasized that the experience of researchers in publishing depends on the nature of the scientific field, which determines whether the publication will be in the first language or in English... Also, the target audience of scientists is a key factor in understanding the language of publication.³ As for the French language, publication did not exceed 18 titles, representing 21.69%.

Year	English	%	French	%	Total Number of Titles
2016	11	84,62	2	15,38	13
2017	15	65,22	8	34,78	23
2018	13	76,47	4	23,53	17
2019	12	92,31	1	7,69	13
2020	14	82,35	3	17,65	17
Total	65	78,31	18	21,69	83

Table 3: Classification by language and by year of publication

Table 3 conveys us that the intellectual production of the laboratory over the years was generally characterized by consistency in terms of numbers regarding works in English, but in terms of proportions we notice that there is a growth and tendency to produce more in this language than in the traditional language used by researchers when publishing the results of their research. This is what made intellectual production in French have a downward curve from year to year, as we recorded only 3 works in 2020 after it had got 8 publications in 2017.

Selected Articles' Citations

Language	English	French	Total
Number of Articles	65	18	83
Number of Citations	257	22	279
Citation Rate per Article	3,95	1,22	3,36

Table 4: Number of citations for selected articles

A researcher certainly works in order to reveal and promote his work, attract the attention of experts, and then observe the echo that he may receive in the scientific community and the effects it brings in the real life. He always works with the intention of making it more disseminated and consequently more cited in others works or researches. “The emphasis on citing stemmed from 1920s, when Gross (1927) applied citation count to evaluate the impact of research»⁴. Later came Eugene Garfield who focussed on citations and references in scientific articles and studied them statistically instead of paying attention to the number of articles produced or published. He gave considerable importance to citations in order to obtain assumptions that certificate the researcher's performance and the nature and quality of his work. The aim of this type of study was to highlight the possible natural relationship between the article and the documentation used and the information employed. The interest in citations means the interest in sharing knowledge, so the more an article is cited, the more information is shared. This is how Garfield suggested in an article published in 1955 ⁵ the idea of linking articles to each other by studying the references that were implemented in editing each article and studying the

existing or related citations between scientific articles. This procedure gives some kind of demonstration of the reality of the submitted work and its importance and impact on science. The more it is referred to, the more it will attract the interest and curiosity of others. “Efforts by a researcher to share his or her work with others may increase the chances that the work will be cited, and citation means recognition”.⁶

As previously mentioned, citations have become an important element in evaluating works, and a scientific work is measured by the number of times it is referred to. In order to measure (scientometrics) and study the activities of scientists and the outputs or results of their scientific research, quantitative statistical methods were employed on bibliographic data. Scientific evaluation has become dependent on digital bibliometric indicators that uses the activity and scientific quality of researchers, institutions and even countries.⁷

Examination of the extent to which the laboratory's articles have been cited in other works appears prominently in Tables 4, whose data has shown that there is in general an acceptable number of citations for all the articles under study. The number of citations an article has received is seen as an objective indicator of the relevance and quality of an original research work. « The use of citations as a quality measure is founded on the assumption that authors select their references on the basis of quality »⁸

Accordingly, it turned out that the total number of works in English had an average of 3.95 citations per article, while those published in French had a much lower rate of 1.22 per article. If a citation is considered a standard of science, it is higher when published in English⁹. It is only natural that articles in English are more accessible and receive greater circulation

and thus greater employment of others works. Papers published in English are more frequently read by international audiences and thus get more citations comparing to other languages.¹⁰ Citations and their numbers are also affected not only by the language, but also by the reputation of the journal in which it is published, the status of the university or the laboratory to which it belongs, the reputation of the researchers and their credentials, or even the degree of scientific cooperation especially at the international level, which we will discuss later. Papers published in an English-language journal are cited more often than those published in multilingual or non-English language journals.¹¹

However, the numerical criterion based on citations cannot be considered in all cases as an objective one, as it actually expresses the scientific and academic level of the work and does not necessarily mean its quality. There are frequently cited articles although some of them do not provide practical additions and are not employed in real life. On the contrary, there are articles of high quality that propose and provide solutions to sensitive issues that are not often cited or not cited at all for one reason or another.

The scientific value does not necessarily come from calculating the number of citations, because it is not sufficient as long as the practical aspect and its impact on economic and public life is not included in the evaluation process despite its importance. Also, the specialties differ among themselves, as there are some in which there is a lot of production due to their nature and topics it requires more reliance on them, unlike others fields of science which require less claim. But as long as there is agreement or like agreement amongst the scientific community

about its importance, we in turn took it and included it in our work and in our analytical network, perhaps it will enlighten us more in understanding the problem of the English language use in the Algerian scientific community

References Employed

Language	Number of articles	Total Number of References	Reference Rate per Article
English	65	2225	34,23
French	18	660	36,67
Total	83	2885	34,76

Table 5: Number of References in the Selected Articles

The bibliographic citations or sources employed in the literature are an indication of the investigations and efforts made by the author to learn about what others have found and benefit at the same time from what they have accomplished in terms of work and concepts and what they have produced in terms of new results and ideas. A researcher works in order to absorb the available and accessible information that will help him understand phenomena that may be part or the essence of his interests, so he rely on it to support his idea and help him produce new knowledge. “The discovery of new scientific knowledge combines understanding and assimilation of the current state of the field with the creation, innovation and access to new findings, concepts and ideas”.¹².

This is a kind of recognition of the importance and high quality of the previous works. So, the new knowledge is based on the previous knowledge and depends on it, which makes the researcher in his study start from what others have reached in

terms of new knowledge, on which he builds his interpretations and analyzes which will help him achieve new scientific productions. The ability to assimilate existing knowledge has a significant impact on how researchers create new knowledge. «we argue that the ability to evaluate and utilize outside knowledge is largely a function of the level of prior related knowledge. At the most elemental level, this prior knowledge includes basic skills or even a shared language but may also include knowledge of the most recent scientific or technical developments in a given field.”¹³

Science, in fact, is nothing but a continuous, interconnected series in continuous development that highlights what has been accomplished and what will be accomplished.

Citations are used in scholarly works to give credit to or acknowledge the influence of previous works, where credit is due.¹⁴

However, its numerical aspect cannot be considered as a scientific standard to be followed or as a sign of quality. In fact, there is no standard or rule that indicates the number of references that should appear in research works and articles, and that academic works differ among themselves according to their nature, specializations, and methodologies. There are those who require a large number of references, such as theoretical works, and there are those who resolve for fewer number of references to tackle and study the subject, such as laboratory or experimental works.

We can conclude that the value of academic works is not necessarily measured by its quantitative aspect, but rather by

other aspects such as methodology, analysis, and the quality of results, however, it is considered by some as an important element of quality. However, the good selection of sources and reliance, for instance, on those that deal with the subject with the necessary accuracy and scientific rigor, have an important role in assessing and evaluating the work.

That is why we focused in this part of our work on a statistical numerical study of the references used in the articles under study, relied on them and measured them as one of the indicators of linguistic employment to identify the importance of the use English language through it. Our work in this regard was limited to the linguistic diversity of the cited references, without addressing their type, specialization, status, age, or place of publication, not even whether they were individual or collective works.

And if we go back to Table 5, we can notice through its data that the total number of articles referred to in both languages reached the total of 2885 sources, an average of 35 references for each article. Concerning the classification according to the language of edition, the rate of references in the articles written in French were higher, with a rate of 36.67references per article, while those written in English reached the rate of 34.23 references per article.

Article language	Total Number of Cited References	In English	%	In French	%	In Arabic	%	In other languages	%
English	2225	1883	84,63	327	14,70	2	0	13	0,58
French	660	414	62,73	246	37,27	0	0	0	0
Total	2885	2297	79,62	573	19,86	2	0	13	0,45

Table 6: Linguistic classification of cited references

In order to go deeper into the analysis, we have studied through Table 6 the linguistic distribution of the references used in the articles under study to note that the articles in both languages relied heavily on Anglophone references. It is worth noting that many of the international peer-reviewed journals do not accept, for the most part, the use of citations that have not been reviewed by peers and reviewers, which in fact are those that were written mostly in languages other than English. These reviewers are mostly Anglophones and most of them are not proficient in foreign languages, so it is difficult for them to read and understand them, which makes them contented with the language they master the most. There are a number of possible reasons why authors who write in English are less inclined to cite articles published in languages other than English, whether because they are not proficient in those languages, or that these articles and journals are out of reach, and their availability in other languages may make the reviewers not giving them the necessary importance, which makes researchers prefer references in English over those in other languages.¹⁶

Therefore, the data of the table tells us that the English language articles are those who used the most references in the same language, with a rate of approximately 85%, whereas the articles in French relied on Anglophone sources in a rate of 62.72%. While other languages, including the Arabic language, were used in a shy rate.

Title: The use of the English language in academic publishing by researchers from the laboratory of “Water Use Efficiency in Agriculture” of the National Higher School of Agriculture-Algiers

Year	Number of references	In English	%	In French	%	In Arabic	%	In other languages	%
2016	454	367	80,84	87	19,16	0	0	0	0
2017	562	493	87,72	69	12,28	0	0	0	0
2018	385	310	80,52	70	18,18	0	0	5	1,30
2019	293	256	87,37	35	11,95	2	0,68	0	0
2020	531	457	86,06	66	12,43	0	0	8	1,51
Total	2225	1883	84,63	327	14,70	2	0,09	13	0,58

Table 7: Annual linguistic classification of references cited in the articles written in English

Year	Number of references	In English	%	In French	%	In Arabic	%	In other languages	%
2016	10	2	20	8	80	0	0	0	0
2017	105	55	52,38	50	47,62	0	0	0	0
2018	331	248	74,92	83	25,08	0	0	0	0
2019	16	10	62,50	6	37,50	0	0	0	0
2020	198	99	50	99	50	0	0	0	0
Total	660	414	62,73	246	37,27	0	0	0	0

Table 8: Annual linguistic classification of references cited in the articles written in French

However, if we shed light on the annual use of references (Tables 7 and 8) while writing scientific papers so as to identify the pace of development over the years, we note that the English

language articles have witnessed a kind of development in the last three years in terms of including Anglophone bibliographic lists in their works. On the other hand, articles in French knew a different state, as they recorded a contraction in the same period, while in the first three years their curve was upward.

English Language Article

AYear	Number of articles	Number of references	Average per article	References in English	Average per article	References in French	Average per article	References in Arabic	Average per article	References in other languages	Average per article
2016	11	454	41,27	367	33,36	87	7,91	0	0	0	0
2017	15	562	37,47	493	32,87	69	4,60	0	0	0	0
2018	13	385	29,62	310	23,85	70	5,38	0	0	5	0,38
2019	12	293	24,42	256	21,33	35	2,92	2	0,17	0	0
2020	14	531	37,93	457	32,64	66	4,71	0	0	8	0,57
Total	65	2225	34,23	1883	28,97	327	5,03	2	0,03	13	0,20

**Table 9: The annual linguistic average use of the references
French Language Articles**

Year	Number of articles	Number of references	Average per article	References in English	Average per article	References in French	Average per article	References in Arabic	Average per article	References in other languages	Average per article
------	--------------------	----------------------	---------------------	-----------------------	---------------------	----------------------	---------------------	----------------------	---------------------	-------------------------------	---------------------

Title: The use of the English language in academic publishing by researchers from the laboratory of “Water Use Efficiency in Agriculture” of the National Higher School of Agriculture-Algiers

2016	2	10	5	2	1	8	4	0	0	0	0
2017	8	105	13,13	55	6,88	50	6,25	0	0	0	0
2018	4	331	82,75	248	62	83	20,75	0	0	0	0
2019	1	16	16	10	10	6	6	0	0	0	0
2020	3	198	66	99	33	99	33	0	0	0	0
Total	18	660	36,67	414	23	246	13,67	0	0	0	0

Table 10: The annual linguistic average use of the references

The main results obtained in Tables 9 and 10 is that articles published in English were less dependent on references, with an average of 34.23 titles per article, while a significant decrease recorded over the years except in the last one. Thus, the data of the table told us that the rate which reached 41.27 in 2016, decreased to 24.42 in 2019, to know a rebound in the following year by reaching a rate of 37.93 references per article. If we explore profoundly the data, we will notice that reliance on Anglophone references has also known the same trend, i.e. a decline from one year to the next, and a recovery in the last year. Articles in French (table 10) followed a different path concerning the number of references used, i.e. a development in the early years and a decline in recent years. The same situation was noticed in the use of references in English.

Article Language	Number of Authors	Number of Articles	Average Author per Article
English	383	65	5,89
French	73	18	4,06
Total	456	83	5,49

Table 11: Relationship between number of authors per articles, and the language of publication

Through Table 11 we sought to study the numerical relationship between authors and articles on the one hand, and the language of publication on the other hand. The data showed that the 83 articles of the laboratory were co-edited by 456 authors, at a rate of 5.49 authors per article. This reveals the policy of research based on cooperation and partnership. It should be noted that the rate of authors is greater when the articles are in English, as it recorded an average of 5.89 authors per article since 389 researchers contributed to editing 65 articles in English. As for the articles in the French language, estimated at 18 works, they were accomplished by 73 researchers, with a rate of 4.06 for each article.

Language	Number of Authors	Total Number of References	Reference rate per Author	English Language	The Average	French Language	The Average	Arabic Language	The Average	Other Languages	The Average
English	383	2225	5,81	1883	4,92	327	0,85	2	0,01	13	0,03
French	73	660	9,04	414	5,67	246	3,37	0	0	0	0
Total	456	2885	6,33	2297	5,04	573	1,26	2	0	13	0,03

Table 12: Linguistic Classification of references by number of authors

Table 12 is trying to study the numerical relationship between authors and references and see if there is any harmony between them and the language of the article. The data indicate that the reference

rate for each author gave an average of 6.33. The thing that requires more attention is that the English-language articles had lower rates of dependence on sources written in the same language compared to the French-language articles. Thus, these articles obtained an average of 5.81 Anglophone references per researcher, while the rates of contributors to Francophone articles reached higher rates of 9.04. The thing that calls into question is that articles in English are usually published in Anglophone periodicals addressed to a wider audience, which theoretically require greater research efforts from their authors and thus more important exploitation of sources, in which English predominates in order to facilitate reviewers work. But what was observed in table 12 was the opposite since both the total number of references and the number of references in English were low comparing to articles written in French.

Foreign and National Partnership in the Produced Articles

Authors	Number	%
Algerian authors	382	83,77
Foreign authors	74	16,23
Total	456	100

Table 13: Distribution of authors (Algerians and foreigners)

As we have already mentioned, the current prevailing research strategy in the fields of science makes academic work, whether in laboratories or outside it, often done collectively, in which researchers from the same country or from other foreign countries participate. We limit the study to the numerical distribution between the two categories in editing the articles so that we can go back to that with some detail when we study the reality of the foreign partnership. Thus, it is noted through Table

13 that there is an actual presence of a foreign partnership that may not be important, but it actually reached the rate of 16.23%, which indicates the existence of Algerian / Algerian cooperation, whether between researchers affiliated with the laboratory or from outside it. Their total number reached 382 Algerian authors out of a total of 456, at a rate of 83.77%.

English Language Articles

Year	Total number of authors	Algerian authors	%	Foreign authors	%
2016	58	49	84,48	9	15,52
2017	92	80	86,96	12	13,04
2018	65	59	90,77	6	9,23
2019	67	51	76,12	16	23,88
2020	101	75	74,26	26	25,74
Total	383	314	81,98	69	18,02

Table 14: Annual Classification of Algerian and foreign authors in English language articles

French Language Articles

Year	Total number of authors	Algerian authors	%	Foreign authors	%
2016	5	5	100	0	0
2017	33	30	90,91	3	9,09
2018	16	14	87,50	2	12,50
2019	2	2	100	0	0
2020	17	17	100	0	0
Total	73	68	93,15	5	6,85
Overall Total	456	382	83,77	74	16,23

Table 15: Annual Classification of native and foreign authors in French language articles

To get acquainted with the most written languages of the Algerian authors and their chronological development, we examined the data obtained in Table 14 related to the articles edited in English to note that the Algerian partnership was very important, amounting to approximately 82%. This type of partnership developed in the early years while it shrank in recent years, giving way to a foreign partnership. This may explain the beginning of the laboratory opening up to the external world and working in a cooperative framework with foreign scientific laboratories and institutions. As for the articles in French, whose data are shown in Table 15, it tells us that cooperation in editing this type of work is almost local, at a rate of 93.15%, and that foreign contributors did not exceed 5 authors out of a total of 73.

Year	Number of articles	In English	%	In French	%
2016	8	6	75,00	2	25,00
2017	14	9	64,29	5	35,71
2018	11	9	81,82	2	18,18
2019	7	6	85,71	1	14,29
2020	9	6	66,67	3	33,33
Total	49	36	73,47	13	26,53

Table16: The annual linguistic distribution of articles written by Algerian authors only

After studying the relationship between the number of authors and the language of the articles, we try through Table 16 to find out the linguistic trend of Algerian authors when they

publish without a foreign collaboration. The data shows us that 36 articles out of a total of 49 were written in English with a rate of 73.47%, and this number constituted 55.39% of the total articles in this language (65 articles, see Table 2), co-edited by 314 Algerian researchers (see Table 14). These percentages are evidence of the existence of a real interest in the laboratory in publishing in English, as it is today an important element in scientific communication, although it is not the only element for measuring quality, because the quality of the work remains the most important, and the language is only an auxiliary element, sometimes not sufficient.

English Language Articles

Year	Number of articles	Number of references	In English	%	In French	%	In Arabic	%	In other languages	%
2016	6	178	136	76,40	42	23,60	0	0	0	0
2017	9	338	293	86,69	45	13,31	0	0	0	0
2018	9	246	203	82,52	38	15,45	0	0	5	2,03
2019	6	293	256	87,37	35	11,95	2	0,68	0	0
2020	6	190	165	86,84	25	13,16	0	0	0	0
Total	36	1245	1053	84,58	185	14,86	2	0,16	5	0,40

Table 17: References used in articles written in English by Algerian authors only

French Language Articles

Year	Number of articles	Number of references	In English	%	In French	%	In Arabic	%	In other languages	%
2016	2	10	2	20	8	80	0	0	0	0
2017	5	66	37	56,06	29	43,94	0	0	0	0
2018	2	305	242	79,34	63	20,66	0	0	0	0
2019	1	16	10	62,50	6	37,50	0	0	0	0

Title: The use of the English language in academic publishing by researchers from the laboratory of “Water Use Efficiency in Agriculture” of the National Higher School of Agriculture-Algiers

2020	3	198	99	50	99	50	0	0	0	0
Total	13	595	390	65,5	205	34,4	0	0	0	0

Table 18: References used in articles written in French and by Algerian authors only

In addition to the information, we have obtained about the publishing languages of Algerian authors alone, we want through Tables 17 and 18 to identify the reference uses with their linguistic orientations and annual development. Thus, we notice that the laboratory researchers employ high percentages of references in English when they edit their articles in this language, reaching 84.58% and the rest for references in French, while the presence of other languages is almost symbolic. To be relatively less when writing in French, which relied on 390 references out of a total of 595, with a rate of more than 65%. As we have already indicated for the reasons that prompt the researcher to publish in English, relying on sources in this language falls within this direction, as the researcher always wants to rely on what is the best information and refer to what is provided by the primary sources with scientific reference, most of which are known to be written in this language. But if we go back to Anglophone productivity and its annual development through its use of sources in the same language during the period chosen for analysis, we find that it is a task that has witnessed remarkable development in recent years.

On the other hand, as has been pointed out, it is noted that articles in French had relied heavily on English in their sources, but it has witnessed a decline in terms of percentages in the last three years, to open the way for sources in the language of

articles, while it is noted that there is a complete absence of other languages.

English Language Articles

Year	Total number of articles	Citations	Total number of references cited	In English	%	In French	%	In Arabic	%	In other languages	%
2016	5	72	276	231	83,70	45	16,30	0	0	0	0
2017	6	48	224	200	89,29	24	10,71	0	0	0	0
2018	4	7	139	107	76,98	32	23,02	0	0	0	0
2019	6	5	118	111	94,07	5	4,24	2	1,69	0	0
2020	8	13	341	292	85,63	41	12,02	0	0	8	2,35
Total	29	145	1098	941	85,70	147	13,39	2	0,18	8	0,73

Table 19: References used in articles written with international collaboration

French Language Articles

Year	Number of articles	Citation	Total number of references cited	In English	%	In French	%	In Arabic	%	In other languages	%
2016	0	0	0	0	0	0	0	0	0	0	0
2017	3	15	39	18	46,15	21	53,85	0	0	0	0
2018	2	0	26	6	23,08	20	76,92	0	0	0	0
2019	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0	0	0
Total	5	15	65	24	36,92	41	63,08	0	0	0	0
Overall Total	34	160	1163	965	82,98	188	16,17	2	0,17	8	0,69

Table 20: References used in articles written with International collaboration

The internationalization of research and international cooperation are currently a feature of scholarly work. Studies based on international cooperation and partnership often provide various perspectives and dimensions that increase its value. It also enables this type of cooperation to benefit from the expertise and experiences of others, and provides an opportunity for local scientific capabilities to emerge and appear on the international level.

Today the world is witnessing a kind of cohesion between scientific groups due to broad and immediate communication needs. This cohesion appears in the emergence on the one hand of international scientific groups working to standardize work methods to reach change and to disclose it in a limited number of international journals, which in turn impose certain publishing laws on the other hand.¹⁶

Partners can share costs and resources, access advanced facilities, exchange experiences, technologies, skills and the latest in modern knowledge, and achieve gains through diversity in professional cultures.

To identify the role of foreign participation and its impact on the language of publication and the language of references, we tried, through Tables 19 and 20, to study the contributions of foreign authors when they participated with their Algerian counterparts in editing articles in terms of the writing language and the language of the references employed. The aim of this analysis is to determine the nature of the obtained results in order to compare them with the productivity of Algerian only authors

in terms of linguistic orientation, and its consistency or difference.

By the way, the obtained data indicate that the estimated 74 foreign authors (see Table 15) participated in writing 29 articles in English and 5 in French. As for the articles in English, they got 145 citations, while the references that were relied upon for editing these works and appearing in their bibliographic lists amounted to 1098 titles among which 941 were in the language of the article, with a rate of about 86%, not far from the ones we recorded when we tackled the contribution of Algerians alone (Table 17). The year 2019 was the pivotal year with a percentage of 94.07%, while the rest of the references were overlooked by French language, with a percentage of 13.39%.

As for articles in French, they did not witness the same generosity as foreigners participated in editing only 5 articles published in the years 2017 and 2018 and used a decent number of 15 references only. The table also showed that the sources relied upon were limited to two languages, in which the French language predominated by 63.08%.

Title: The use of the English language in academic publishing by researchers from the laboratory of “Water Use Efficiency in Agriculture” of the National Higher School of Agriculture-Algiers

English Language Articles

Authors	Number of authors	Number of articles	Number of references	References in english	%	References in french	%	References in arabic	%	In other languages	%
Algerians alone	164	36	1245	1053	84,58	185	14,86	0	0	0	0
In partnership with foreigners	150	29	1098	941	85,70	147	13,39	2	0,18	8	0

Table 21: General cumulative table by affiliation of authors

French Language Articles

Authors	Number of authors	Number of articles	Number of references	References in english	%	References in french	%	References in arabic	%	In other languages	%
Algerians alone	43	13	595	390	65,55	205	34,45	0	0	0	0
In partnership with foreigners	25	5	65	24	36,92	41	63,08	0	0	0	0

Table 22: General cumulative table by affiliation of authors

As a summary of what we have got through the data shown in Table 21, which gave us a comprehensive picture of the of Algerian authors’ contribution alone or with foreign collaboration when publishing in English, the results revealed that the estimated 164 researchers contributed alone, without

collaboration, to editing more than 55% of the articles, i.e. 36 articles out of a total of 65 in the same language. Foreign cooperation is also distinguished by its strong numerical presence, which numbered 150 authors who contributed to writing 29 articles. The most essential thing to put a stress on is the rates of reliance on references in English which were very close with slightly higher percentages achieved when there was a foreign cooperation. As for the reliance on other languages, it was limited to the French language and the absence of other languages, with the exception of two references in Arabic when collaborating with foreigners.

Articles in the French language also knew significant foreign contribution with 25 researchers out of a total of 68, but their work did not bear fruit except for 5 articles in which there was little reliance on Anglophone references, much less comparing to work done by Algerians alone. Also, the two categories of researchers never used references in other languages, except for the language of the article, of course.

English Language Articles

Number	Country	Number of Authors	%	Number of articles	References	References in english	%	References in french	%	References in arabic	%	References in other languages	%
1	France	29	42,03	15	596	472	79,19	116	19,46	0	0	8	1,34
2	Tunisia	10	14,49	5	179	155	86,59	24	13,41	0	0	0	0
3	Belgium	7	10,14	3	190	185	97,37	5	2,63	0	0	0	0
4	Spain	6	8,70	3	72	52	72,22	13	18,06	0	0	7	9,72
5	India	3	4,35	3	74	64	86,49	8	10,81	2	2,70	0	0
6	Italy	2	2,90	2	89	75	84,27	14	15,73	0	0	0	0

Title: The use of the English language in academic publishing by researchers from the laboratory of “Water Use Efficiency in Agriculture” of the National Higher School of Agriculture-Algiers

7	Malaysia	2	2,90	2	63	63	100		0	0	0	0	0
8	Morocco	2	2,90	2	66	52	78,79	14	21,21	0	0	0	0
9	Germany	2	2,90	1	6	6	100		0	0	0	0	0
10	United Kingdom	2	2,90	1	46	45	97,83	1	2,17	0	0	0	0
11	China	1	1,45	1	20	20	100		0	0	0	0	0
12	Kenya	1	1,45	1	6	6	100		0	0	0	0	0
13	Palestine	1	1,45	1	43	43	100		0	0	0	0	0
14	Sri Lanka	1	1,45	1	80	68	85	11	13,75	0	0	1	1,25
	Total	69	100	41	1530	1306	85,36	206	13,46	2	0,13	16	1,05

Table 23: Countries of affiliation of foreign authors

French Language Articles

Number	Country	Number of Authors		Number of articles	Number of references	References in english	%	References in french	%	References in arabic	%	References in other languages	%
1	France	4	%	4	53	21	39,62	32	60,38	0	0	0	0
2	Netherlands	1	20	1	12	3	25	9	75	0	0	0	0
	Total	5	100	5	65	24	36,92	41	63,08	0	0	0	0

Table 24 Countries of affiliation of foreign authors

The foreign researchers who participated with their colleagues from the laboratory in editing the results of their work in the form of scientific articles reached 74 researchers belonging to 15 foreign countries. This scientific elite participated in writing 46 articles, 41 of which are in English and 5 in French.

As for the articles in English, 69 foreign authors from 14 countries participated in completing them, most of which are not Anglophones, but they adopt the international language as a

language in research and publication. Through table 23, we tried to identify the numerical distribution of authors by country and the articles they produced, as well as the number of reference citations for each work and the status of what is published in English, especially. The data obtained, arranged in descending order in the table according to the number of articles for each country, show us that 42 researchers belonging to 4 countries, all of them non-Anglophone (France-Tunisia-Belgium and Spain) participated in the completion of 26 articles, the rate of references in written language was 83.60%. As for the Anglophone countries (India-Malaysia-United Kingdom-Kenya and Sri Lanka), its estimated number of 9 authors participated in editing 8 papers whose references in English constituted 91.45%.

The articles in French (Table 24), which numbered 5, were co-edited by the same number of authors from two countries (France and Netherland), in which the sources employed and published in English were less than the average, at a rate that did not reach 37%, so that the predominance, of course, was for the French language. As for the thing that requires attention, the French authors relied on their sources in English (39.62%) more than those employed by the only author belonging to Netherland (25).

Journals employed

Upon completion of his scientific projects, the researcher works to disseminate his findings by writing and editing them in the form of articles published in specialized journals. The purpose of this is to first introduce his work and the results he found, thus giving him the opportunity to contribute to the scientific discussion about his achievements and possibly

enriching it with the experiences of others. Secondly, as we have already mentioned, the search for recognition among the scientific community that helps him make his works more visible. In addition to this, the researcher naturally aspires to be published in the most prestigious specialized, refereed and trustworthy journals. Journals are not equal to each other, some of them are famous and have a distinguished authority in the scientific field, which makes their articles more valuable and more echoing. However, these journals operate according to standards that require scientific genuineness in scheme, study and results, which necessitate good work and vigor in research.

Algerian scientists, like their counterparts in other countries, are also seeking to publish their works in well-known and reputable journals that are popular within scientific groups, interested people, and readers. "Papers published in prestigious journals tend to receive more citations."¹⁸

However, high-quality journals are often published in English, which requires the researcher to work not only in accordance with the scientific requirements and guidelines of the journal, but also in accordance with the language it imposes. Thus, when analyzing the data of Table 25, we noticed that the laboratory's articles written in English were published in 30 scientific journals, one of them is Algerian, almost all of them are Anglophone. Some articles have also been published in book parts or in conference proceedings.

As for works published in French, it is natural that they rely on Francophone periodicals (Table 26), with a total of 8 scientific journals.

Conclusion

Although many scholars have convictions that living languages can honestly express the outputs of scientific research, since science is based on facts and local realities, and that research is based on serving the community to which it is affiliated, so that the prevailing languages in it are worthy to use. Accordingly, the language or national languages or scientific languages in circulation can express the results and conclusions of research that can be of real quality and value despite of the lack of linguistic repertoire or appropriate and accurate terminology. However, there is almost unanimity in the international scientific community, including the Algerian community, that language has become an important element in the research process and has become an input to the production of knowledge. It included the true expression of the facts, in addition to its role in communicating knowledge to wider societies and geographical areas. A strong language is the guarantor for achieving this goal, and many languages lack these capabilities or qualifications. As long as the world is heading towards inclusiveness and uniformity in practices and work according to specific frameworks and standards, unifying the language of use has become a necessity that can be included within this direction. Today, the pragmatic practical reality imposes the use of a language most employed in academic circles - the English language - to ensure a greater presence in these societies. The main result of the study is that researchers of the laboratory (WUEA) are aware of the role of English for the worldwide distribution of their scientific knowledge, since most of their work is done and published using that language. It is natural that articles in English are more used by scientists, and

thus receives higher citations at significant rates, which would not be possible if they had been published in other languages. The researchers worked in harmony with their linguistic choices in editing their articles as well as in selecting the references by using the same language and sometimes at high rates, which enhances their awareness of the role of this language, not only when publishing, but also in acquiring knowledge and reading the best findings of science. Similar to what most international universities and laboratories do with regard to scientific partnership, the outputs of the laboratory works were carried out collectively with national or international partnership. The scientific collaboration between Algerian universities and their foreign counterparts at the level of research centers and laboratories aimed at achieving joint projects that can be considered within the internationalization of science and research, since a significant number of the laboratory outputs were made through this partnership. The foreign cooperation had a slight effect on the language of editing scientific texts that increases slightly when writing in English. The Algerian researchers' contribution in writing articles in English was not far from what was produced by the foreign collaboration that belongs to 15 countries, most of which adopt English as a working language.

Concerning the journals researchers relied on to publish the results of their research, most of them (81%), were Anglophone but belonging to non-native English speakers' countries, who adopt English as a language of publication. English language references were also the most reliable sources comparing to other languages

Bibliography List:

1. <https://www.ethnologue.com/guides/ethnologue200>
2. Leclerc, Jacques, (2014). *L'aménagement linguistique dans le monde*, Québec, CEFAN, Université Laval. Available from <https://www.axl.cefan.ulaval.ca/index.html>. Accessed November 2017.
3. López-Navarro, I., Moreno, A.I., Quintanilla, M.Á. et al. 2015. Why do I publish research articles in English instead of my own language? *Scientometrics*, [SEP]. Available from http://digital.csic.es/bitstream/10261/114333/1/research_articles_english_Lopez.pdf. Accessed September 2020
4. Wang, B., Bu, Y. & Xu, Y. A, 2018. A quantitative exploration on reasons for citing articles from the perspective of cited authors. *Scientometrics* 116, 675–687 (2018). Available from <https://doi.org/10.1007/s11192-018-2787-6>. Accessed December 2020.
5. Garfield, Eugene, (1955). *Citation Indexes for Science: A New Dimension in Documentation through Association of Ideas*. *Science*, Vol:122, No:3159, p.108-111, July 15, 1955. Available from <https://pubmed.ncbi.nlm.nih.gov/14385826/>. Accessed June 2020
6. شباب فاطمة (2014)، الرمادي: الحضور «Visibilité» كمفهوم وأداة للتقييم. أطروحة دكتوراه. تخصص علم لمكتبات والتوثيق. الجزائر. 389 ص. إشكالية تثنى الأدب
7. Kermarrec, A.M., Faou, E., Merlet, J.P., Robert, P., Segoufin, L. (2007). Que mesurent les indicateurs bibliométriques ? Document d'analyse de la commission d'évaluation de l'INRIA. Available from http://www.mi.sanu.ac.rs/novi_sajt/news/an_doc/Dosen4.pdf. Accessed October 2019

8. Seglen, P.O,1997. Citations and journal impact factors: questionable indicators of research quality. *Allergy*, 1997 :52 :1050-1056. Available from <https://onlinelibrary.wiley.com/doi/10.1111/j.1398-9995.1997.tb00175.x>. Accessed October 2020.
9. Wang, B., Bu, Y. & Xu, Y. A quantitative exploration on reasons for citing articles from the perspective of cited authors. *Scientometrics* 116, 675–687 (2018). <https://doi.org/10.1007/s11192-018-2787-6>. Accessed June 2020.
10. Tahamtan, I., Safipour Afshar, A. & Ahamdzadeh, K. 2016.Factors affecting number of citations: a comprehensive review of the literature. *Scientometrics* **107**, 1195–1225 (2016). Available from <https://doi.org/10.1007/s11192-016-1889-2>. Accessed October 2020
11. IBID
12. Qiu et al ,2016. Cited in Gong, K., Xie, J., Cheng, Y. *et al.* ,2019. The citation advantage of foreign language references for Chinese social science papers. *Scientometrics*. Available from https://www.researchgate.net/publication/334097058_The_citation_advantage_of_foreign_language_references_for_Chinese_social_science_papers . Accessed September2022.
13. Cohen, W. M., & Levinthal, D. A. ,1990. Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35(1), 128–152.Available from <https://doi.org/10.2307/2393553> . Accessed Jun 2019
14. FUNG, Isaac CH.,2008. Citation of non-English peer review publications–some Chinese examples. *Emerging Themes in Epidemiology*, 2008, vol. 5, no 1, p. 1-9. Available from

<https://ete-online.biomedcentral.com/articles/10.1186/1742-7622-5-12>. Accessed September 2021

15. IBID

16. Steffen, Gabriella ; Gajot, Laurent ; Darbellay, Fredone (2019). Les langues dans la recherche scientifique et son évolution : quelques regards. Bulletin VALS-ALSA, N° 109 p.93-110. Available at : https://doc.rero.ch/record/328743/files/Steffen_Gabriela_-_Les_langues_dans_la_recherche_scientifique_UNINE_VALS-ALSA_109_2019.pdf . Accessed Avril 2021

17. Cillahan et al (2002). Cited in Gong, K., Xie, J., Cheng, Y. *et al.* (2019). The citation advantage of foreign language references for Chinese social science papers. *Scientometrics* 120, 1439–1460 (2019). Repéré à : <https://doi.org/10.1007/s11192-019-03146-4>. Accessed [November 2020](#)