

Ex Post Facto and Trends on Total Quality Management Papers: Bibliometric Analysis in Algerian Scientific Platform

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ABSTRACT

Purpose: Doing a bibliometric analysis of the papers on Total Quality Management published in Algerian Scientific Journals Platform (ASJP).

Methodology/Approach: Following Bibliometric analysis approach that reaches the export of scientific papers from ASJP during 2005-2022 and using Biblioshiny based on the R language (RStudio).

Findings: The study highlighted the prominent authors, universities, and journals, identifying both opportunities and research advancements in TQM research and urging scientific collaboration. TQM practices in different sectors remain a current and relevant research topic, however, the analysis outlined some conceptual structure gaps within particular areas. The outputs provide insights and suggestions for scholars and practitioners in the field of TQM.

Research Limitation/Implication: The study examines only papers published in ASJP until 2022. Findings could be useful for TQM stakeholders in emerging countries. Practitioners benefit from experiments to deal with the TQM method.

Originality/Value of paper: In Algerian context, the study's substantive contribution denotes that Industrial and Health care Areas constitute knowledge and empirical gaps in the TQM field; for future, researchers should exploit key words used by prominent authors; the TQM performance and higher education are the most explored topics as Motor themes; organisational culture as emerging theme had grown interest need exploration; total quality or continuous improvement themes are important for the TQM research require further works.

Category: General Review

Keywords: total quality management; bibliometric analysis; Algerian scientific journal platform; Biblioshiny; trends

1 INTRODUCTION

Quality has become one of the organisations' keys to success because it allows them to face competition and unpredictable changes in the environment. Thus, many business practitioners and industry managers have started adopting different quality improvement approaches or Programmes to enhance competitiveness and sustain business performance. These Programmes comprise Total Quality Management, Lean, ISO 9000, Six Sigma, and Quality Models (Talib et al., 2011). Total Quality Management frequently called TQM has evolved into a popular approach in different industries (Neyestani, 2017).

It's widely believed that TQM represents a set of management techniques that focus on customer happiness, product quality, industry advancement, and constantly improving performance, which has rendered it the most used approach (Kristianto, Ajmal and Sandhu, 2012; Talib, Rahman, and Qureshi, 2011; Talib and Rahman, 2010; Yusof and Aspinwall, 2000). Through TQM practices, industries, manufacturing, and services have been trying to upgrade their quality standards and enhance product and service design to fulfil customer expectations and improve overall business performance (Subrahmanya Bhat and Rajashekhar, 2009). Management by total quality is also a modern management tool and an essential variable of competitiveness that assures the optimal exploitation of the means available throughout, ensuring permanent profitability in the activities referred to organisations.

Scientific journals constitute the utmost potent tools for leading scientific research efforts and activities in knowledge. Several universities, departments, laboratories, and scientific centres publish a lot of research papers across different scientific journals, which are interested in scientific research and TQM in particular. Recently, the Algerian Scientific Journal Platform (ASJP) has embodied a considerable part of research studies at the Algerian level relating to TQM, but according to our investigation across ASJP, this topic misses and needs highly a bibliometric analysis in order to be explored in terms of its features and trends within the local databases.

The bibliometric analysis is a quantitative technique used to appraise the metrics aspects of extant scientific literature, such as authors, sources, institutions, and countries' scientific performance in citation, co-citation, and authorship coupling analyses. Furthermore, it provides an analysis of publications to find out the impact of ex-post facto research and draw a future trends area (Ebrahim, 2017).

The published papers on TQM in ASJP will be analysed using bibliometric methodologies in this study. This work evaluates the publication outputs of countries, institutes, journals, and research fields with an innovative method, which allows the identification of development trends and future orientation of the research domain by analysing specific information like author keywords, source title, and keywords plus (Garfield, 1990; Zhang et al., 2016).

Our investigation will contribute to the literature on this topic by providing a useful understanding of the current status of research on TQM in Algeria; however, the findings will make an important contribution to the TQM literature and will be of interest to researchers, practitioners, and policymakers.

In light of the topic under study's features and ASJP platform specificities, the timeframe covered the period 2005-2022, while the study aims to deal mainly with the following questions:

- Q1: What is the historical evolution of the literature about TQM in ASJP? And in which direction for the future?
- Q2: Who are the most prolific authors and the most successful publishing universities? Achievements and Trends.
- Q3: What are the primary journals around which the research topic is arranged?
- Q4: What conceptual structure has formed, and what are the potential areas of research that require further research?
- Q5: What do the empirical studies look like (evolution, covered sectors, used materials, and tools)? What does this mean for the future?

The remainder of the article is structured as follows: The next section offers an overview of the TQM literature, followed by a description of the method used and a discussion of results, conclusions, and implications.

2 LITERATURE REVIEW

Several research works have reviewed and inquired about the essential practices and the basics of TQM and quality Programmes; exclusively, the adequate of them which deal with the bibliometric approach first and interest directly our study conduct us to monitor precisely the following, Zhang, Moreira and Sousa (2021) aimed to analyse in the service sector the major domains of TQM by following a bibliometric analysis of the whole available literature on TQM located in Scopus and Web of Science databases, The findings pointed out that TQM implementation is still a current and relevant research topic, while top management leadership/commitment is the key construct. The paper provides insights on techniques that accommodate TQM implementation dedicated to TQM professionals and managers in the service sector and states several research avenues for academic professionals. The study conducted by Lee and Hew (2017) intended to evaluate the quantity and quality of TQM research from 2006 to 2015. Using bibliometric analysis, they found that TQM remains a current and relevant research topic; some future directions for TQM scholars are also suggested. Adopting bibliometric analysis, Ho et al. (2023) attempted to present a thorough overview of the body of existing TQM literature. Their analysis outlined the most recent trends, gaps in the literature, and research advancements. They also provide propositions about how to contribute in research development

on this topic for scholars and highlighted the most essential and current research findings for practitioners. Singh and Arora (2023) conducted a study in which they looked at trends in the studies that have been issued with the TQM Journal's indexing in the Scopus database, they discovered that one of the most reputable and influential journals in the domains of total quality management, performance, combined management systems, and related topics is the TQM Journal. They contend that, particularly all along the pandemic and changes therein, the TQM Journal has a promising future in covering the various and most recent trends throughout industries. Singh and Shrivastava (2012) investigated the issues of the TQM Journal since its inauguration under the aim of determining the emerging trends and tendency topics. Via social network analysis techniques and quantitative bibliometric, they found several trending topics. On the whole, these studies indicate that TQM remains a current and relevant research topic, and underline in TQM implementation the significance of upper management leadership/commitment. They also provide insights and suggestions for practitioners and scholars in the field of TQM.

2.1 Research Gap

Particularly, the studies described above examine TQM research using bibliometric analysis in worldwide databases such as Scopus or WOS. However, the bibliometric analysis of TQM in local databases, specifically in the ASJP attracts or deserves admiration and investigation. Even though various researches have been conducted on TQM in the local platform, rigorous quantitative assessments of TQM in ASJP are non-existent. This work aims to undertake a bibliometric analysis of the available literature on TQM which first requires a special and adjusted methodology. This paper organizes the TQM research field, highlights trends, draws TQM research prospects, and makes recommendations.

3 METHODOLOGY: TOOLS AND MATERIALS

In contrast to more powerful databases such as WOS and Scopus, which are prepared for the automatic compilation of information using file exportation features (.bib, .CSV, or .txt format), these features are not available on the local platforms in emerging countries such as Iraqi Academic Scientific Journals (IASJ) in Iraq, Egyptian Knowledge Bank (EKB) in Egypt, Emarefa in the United Arab Emirates, and the ASJP. This limitation pushed us to collect data manually in an Excel file and then transfer it to the bibliometric file provided by the Scopus database. This smart procedure allows the extraction of the results using Bibiloshiny tool based on the R language (RStudio); this act forms another research-added value. The study assesses the progression of TQM research, defining the peak in terms of publication, contribution and impact of TQM research conducted by Algerian and foreign researchers at the ASJP.

A bibliometric study addressed the search problem by compiling all published scientific literature in ASJP between 2005 and 2022 and extracting them on December 31, 2022. We created a database of all papers that used “TQM” in their abstracts, titles, or keywords. The study employed bibliometric tools collection as the best way to find trends as (e.g., see Fig. 1).

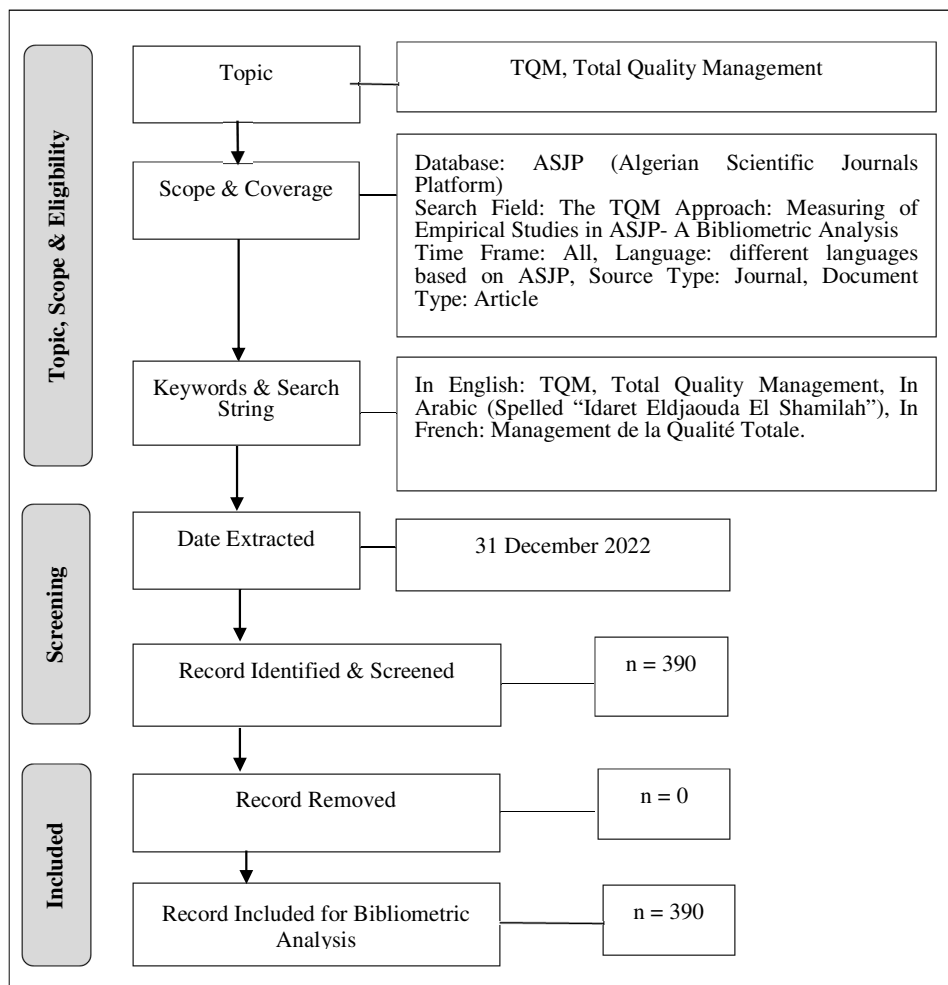


Figure 1 – Design Model of Bibliometric process about TQM in ASJP

4 RESULTS AND DISCUSSION

The ASJP currently publishes 802 journals in 29 fields, enabling scholars to exhibit their work in seven languages. ASJP now comprises 209,803 articles. Despite this vast study volume, we could locate exactly 390 papers on TQM by searching using all feasible terms and languages.

After using the bibliometric tools, we have reached the following results in response to vital questions:

Q1: What is the historical evolution of the literature about TQM in ASJP? And in which direction for the future?

4.1 Annual Scientific Production

This analysis pertains to the yearly scientific output in the field of TQM. Since the beginning of 2005, the production of most publications has increased, and this is why we have chosen this period of investigation, where the graphic curve (e.g., see Fig. 2) indicates the percentage of the total number of articles for each year. What we notice from the first curve (Fig. 2) is the beginning of writing and research on this topic due to the lack of knowledge of researchers about it, in Algeria specifically, to forecast TQM's scientific production in the ASJP, a linear regression model was employed using a trend line, as described by (Barrios et al., 2008), the dependent variable in this analysis is the number of articles published, while the independent variable represents the years in which these articles were published.

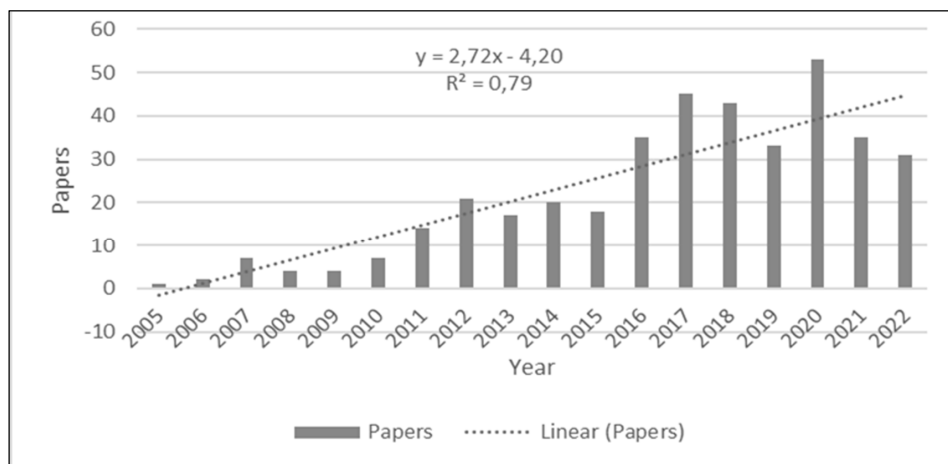


Figure 2 – Annual Scientific Production 2005-2022

The linear model indicates high explanatory power with an R-squared value of 0.76. The regression analysis results show that the trend in the number of articles published per year in this field is upward, with an average increase of 2.72 articles per year. For example, starting from 2005-2023 is the 18th year; by replacing x with 18, we found that at the end of 2023, it is expected that 45 articles will be published and 67 articles by the end of 2030. In addition, (e.g., see Fig. 3) expresses the cumulative rate of the annual scientific production, where the percentage did not exceed 10% in 2011 (7 years after the establishment of the platform), and the uses of total quality in organisations and factories was not considered as requirement owing to the ignorance of their managers, which

was reflected in writing and research on this subject. However, in the year 2016, it recorded a development in the issue of total quality (Fig. 3), as the percentage increased during the last seven years till 70.51%, due to the beginning of entrepreneurial activity and the revival of thought at all levels, especially with regard to the field of business administration.

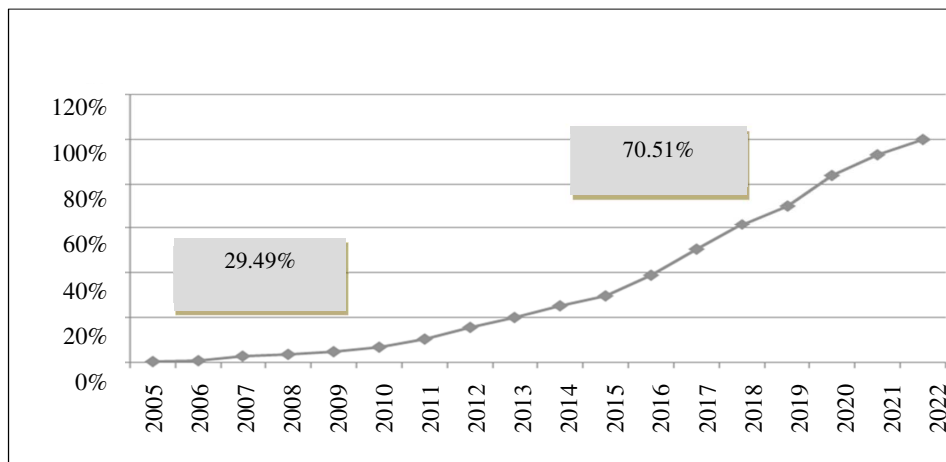


Figure 3 – The Cumulative Annual Publishing 2005-2022

4.2 Analysis by Subject Area

The analysis of TQM journals published in the ASJP reveals seven distinct categories (e.g., see Fig.4) The majority of publications (50.51%) fall under the business and economic sciences sector, indicating the strong link between TQM and the organisation's economic aspect, this result complies with (Ho et al., 2022). Multidisciplinary sciences account for 28.97% of publications, reflecting the broad impact of TQM across various disciplines. Humanities and social sciences contribute 15.90% due to the growing development in this field and its reliance on empirical studies. The application of TQM in sports studies represents a smaller proportion at 2.56%, suggesting less interest in this area. Law and political science make a modest contribution at 1.54%. In the future, researchers are expected to continue exploring TQM in business and economics while also investigating its potential in interdisciplinary research. Additionally, there may be a shift towards exploring the societal and personal well-being impact of TQM in the humanities and social sciences. It is anticipated that interest in applying TQM in mathematical research, history, language, media, and other fields will grow. Overall, this analysis provides valuable insights into current trends and future prospects based on different disciplinary focuses.

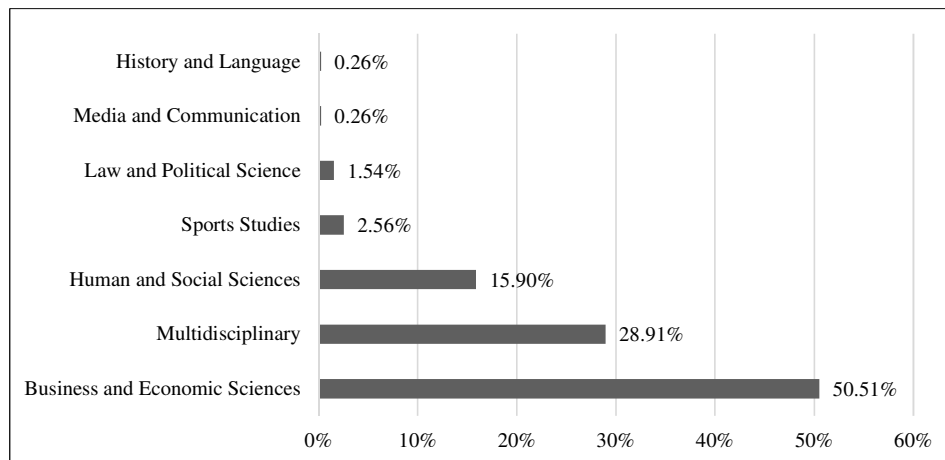


Figure 4 – Classification by Subject Area

4.3 Analysis by Language used

Tab.1 shows that 94.10% of papers are written in Arabic, indicating a preference for the native language among authors. Only a 3.59% are written in English, while French accounts for 2.31% of the articles.

Table 1 – Language-Based Classification of TQM Publications 2005-2022

| Language | NP Rate |
|----------|---------|
| Arabic | 94.10% |
| English | 3.59% |
| French | 2.31% |

Notes: NP Rate – Number of papers rate.

The preference for Arabic can be attributed to several factors, including limited proficiency in foreign languages among researchers, particularly in economics and humanities disciplines, where English is commonly used for scientific research. However, there is an increasing interest in English language proficiency among scholars due to its prominence in international scientific discourse. Authors who publish in English have greater opportunities for collaborations, as they demonstrate language mastery and can connect with their peers worldwide through shared references. Moreover, researchers who previously published in Arabic are now striving to produce research in English to meet the new requirements set by the Ministry of Higher Education, which emphasize publications in internationally indexed journals. Despite this shift, initial publications may still be submitted to journals listed in the ASJP.

Q2: Who are the most prolific authors and the most successful publishing universities? Achievements and Trends.

4.4 Most productive Authors

From Tab. 2 and the highest ACY, it is observed that there was a trend toward an increase in the number of papers published per year. Hamdi since (2021), Yakoubi, and Gherraz since (2020) have the highest ACY values of 2.000, 1.333, and 1.333, respectively. This indicates that they are highly productive and it can be expected that Hamdi, M., Gherraz, E., and Yakoubi, K. will continue to be highly productive in the coming years, the researchers' high productivity and newness of publications open up prospects for scientific collaboration in the future. Moreover, Almaoui, A., Yahiaoui, I. and Hdidane, S. with $N_p = 5$, for each author, have also published more papers, with an ACY of 0.417 for each one, Benaichaoui, A. has the lowest ACY of 0.176, which indicates a lower level of productivity. The researchers' high productivity and newness of publications open up prospects to enhance their publication rate to remain competitive. In general, this table lends valuable information to researchers and universities looking to measure productivity and trends in TQM.

Table 2 – Most Productive Authors

| Author | NP | PY_start | ACY |
|-----------------|----|----------|-------|
| Ahmed Almaoui | 5 | 2011 | 0.417 |
| Ilham Yahyaoui | 5 | 2011 | 0.417 |
| Sabrina Hdidane | 5 | 2011 | 0.417 |
| Eltahar Gherraz | 4 | 2020 | 1.333 |
| Khelifa Yakoubi | 4 | 2020 | 1.333 |

Notes: NP – Number of papers; PY_start – Year of first paper; ACY – Average Per year.

Fig. 5 shows the authors' production over time, comprising bubbled timelines of top authors. Yahyaoui, K., Almaoui, A., and Hdidane, S. have been launched since 2011, but they have not continued since 2020, unlike Hamdi, M., and Gherraz, E., who only started in this field in 2020 and continue to produce. In the future, we expect the authors who begin late and continue their activity to be more familiar with modern trends in the field of TQM.

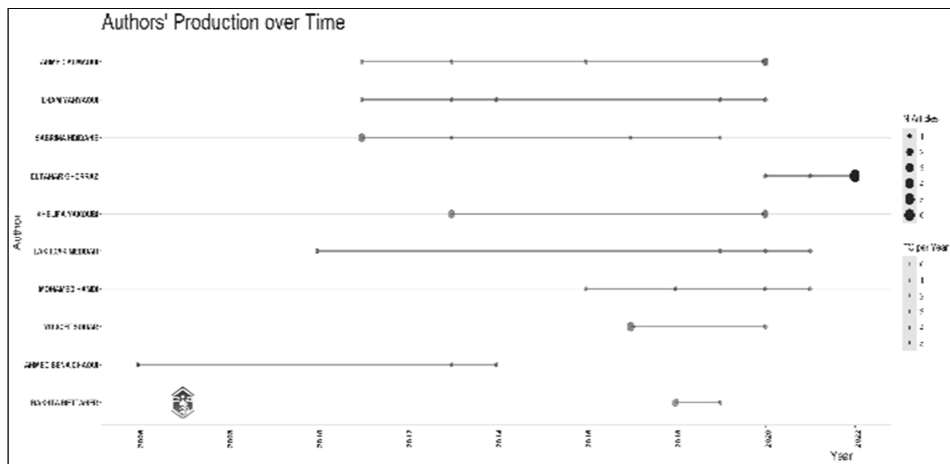


Figure 5 – Authors Production Over

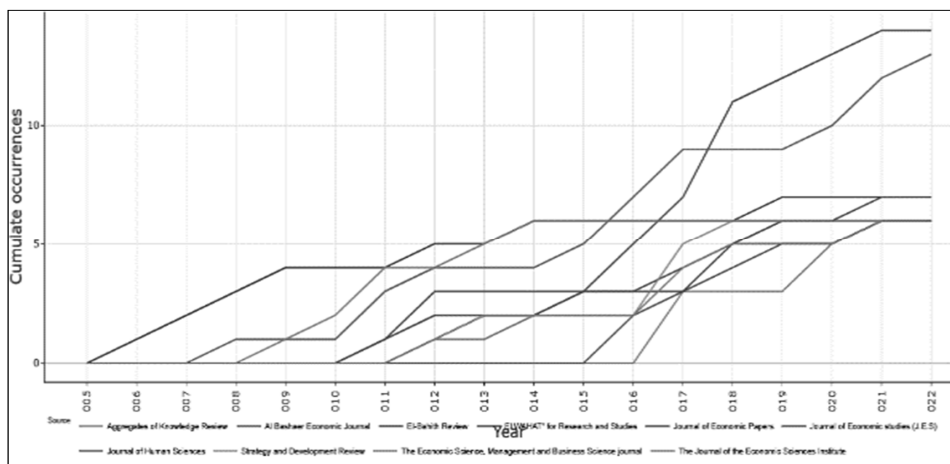


Figure 6 – Sources' Production Over Time Time

4.5 Most Productive Author's Institutions

In the Tab. 3, ALGIERS 03 University is the most prolific institution in TQM research, with the most published articles (30) and the greatest average papers (ACY) per year with (2.308). DJELFA University and BATNA 01 University are closely after ALGIERS 03 University, with 28 and 27 articles, and ACYs of 2.154 and 2.250, respectively. The top three institutions in terms of ACY values are JIJEL (3.333), ALGIERS 03 (2.308), and BATNA (2.250). These findings indicate that institutions, notably JIJEL University, have maintained a high level of production and they are expected to sustain this trend in the future. SAIDA, BISKRA, TLEMCEN, and M'SILA Universities' NP and ACY values have remained steady, showing sustained productivity in TQM.

Table 3 – Most Relevant Affiliations

| Institution | NP | PY_start | ACY |
|----------------------|----|----------|-------|
| Algiers03 University | 30 | 2010 | 2.308 |
| Djelfa University | 28 | 2010 | 2.154 |
| Batna01 University | 27 | 2011 | 2.250 |
| Saida University | 24 | 2012 | 2.182 |
| Tlemcen University | 24 | 2007 | 1.500 |

Notes: NP – Number of papers; PY_start – Year of first paper; ACY – Average Per year.

Q3: What are the primary journals around which the research topic is staged?

4.6 Most Productive Journals

According to Tab. 4, the Journal of Economic Studies (J.E.S.) and Aggregates of Knowledge Review have the greatest ACY (1.077 and 1.000, respectively), suggesting a high degree of production. Since 2010, the NP produced annually has been increasing, J.E.S. led the area at NP = 14, followed by Journal of Huamn Sciences with NP = 13. However, El-Bahith Review underwent lesser productivity with ACY (0.412). Authors with modest NP and ACY may need to boost scientific production to become competitive. These findings provide significant metrics and measures to institutions, laboratories, and writers seeking for publication possibilities and guiding their research activities.

Table 4 – Most Productive Journals

| Journal | NP | PY_start | ACY |
|--|----|----------|-------|
| Journal of Economic studies | 14 | 2010 | 1.077 |
| The Journal of Human Sciences | 13 | 2008 | 0.867 |
| Journal of Economic Papers | 7 | 2011 | 0.583 |
| El-Bahith Review | 7 | 2006 | 0.412 |
| ELWAHAT for Research and Studies journal | 7 | 2012 | 0.636 |

Notes: NP – Number of papers; PY_start – Year of first paper; ACY – Average Per year.

Q4: What conceptual structure has formed, and what are the potential areas of research that require further research?

4.7 Conceptual Structure

Bibliometric analysis used frequently Conceptual Structure analysis, which aims to draw a comprehensive framework, an intellectual structure, and connectedness among concepts within a particular research subject. The Conceptual Structure

outlines a mapping or visual representation based on Keywords frequencies, co-occurrence analysis, thematic evolution, and three-plot fields, this shaping of concepts allows researchers to gain insights into knowledge and facilitate the discovery of knowledge gaps or potential research collaborations as follow.

4.8 Keywords Frequencies

The word Frequencies is used to indicate the strong occurrences of the keywords or significant expressions. The dataset is in the Tab. 5 revolves roughly around the main topics of TQM's papers in ASJP, such as "Total Quality Management", "University", "Service", "Higher Education", and "Human Resource Management", These concepts potentially hold significance within the context of the analysis or dataset being examined. Nonetheless, keywords that are lacking, such as Hospital, Industrial, and tourism, may constitute knowledge gaps worth covering in the future.

Table 5 – Keywords Frequencies

| Rank | Combination words | Frequency |
|------|---|-----------|
| 1 | Total Quality Management | 287 |
| 2 | University, Service, Higher education | [31-50] |
| 3 | Human resource, | [21-30] |
| 4 | Organisation | |
| 5 | Administration, Higher education Institution Organisational culture Hospital, Health, Bank | [10-20] |
| 6 | Industrial, Tourism | < 10 |

4.9 Co-occurrence Network

The co-occurrence network analysis focuses on identifying frequent keywords that appear together in research papers (Olczyk, 2016). The analysis considers author-keywords and keyword-plus, provided by databases like WOS or Scopus. Fig. 7 visualizes the analysis results, with different nodes representing keywords of varying significance and frequency. The size and relationship of each node measure its importance. In the displayed output, 30 out of 676 keywords are shown, forming two distinct clusters. The largest cluster is the red node, comprised seventeen nodes indicating the keyword "total quality management" with a high relationship. The second cluster, coloured blue consists of thirteen nodes, with keywords like "total quality", "education", "performance", and "university" are being prominent.



Figure 7 – Co-Occurrence Network

4.10 Thematic Evolution

According to the visualization technique (e.g., see Fig. 8 and Fig. 9): (I) Motor themes represent the key structure of the research field; here, total quality management performance and higher education are the most explored topics (confirming Tab. 5, see Ranks 1 and 2); (II) Niche themes (human capital, human resources) are highly specialized themes, but marginal in the field globally. While the principles of TQM remain interesting and recurrent themes for both practitioners and researchers. (III) At the lower left quadrant, declining or emerging themes were drawn and characterized by low density and marginal centrality. Our finding considered organisational culture as a field of study that has had significant growth from 2006 until 2022 (e.g., see Fig. 9). (IV) In the lower right quadrant, the basic themes were mapped, Topics like total quality or continuous improvement are important for the TQM field but are not yet well developed, which will lead scholars in the future to perform further works.

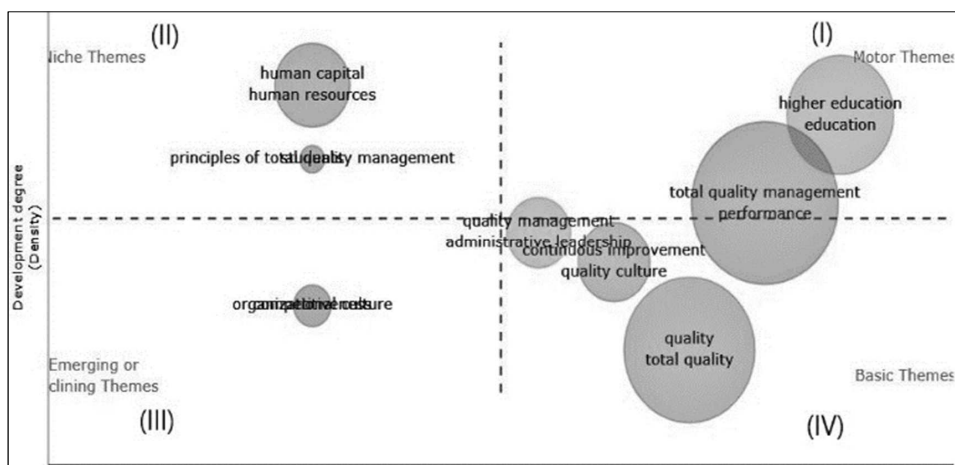


Figure 8 – Thematic Evolution Slice2

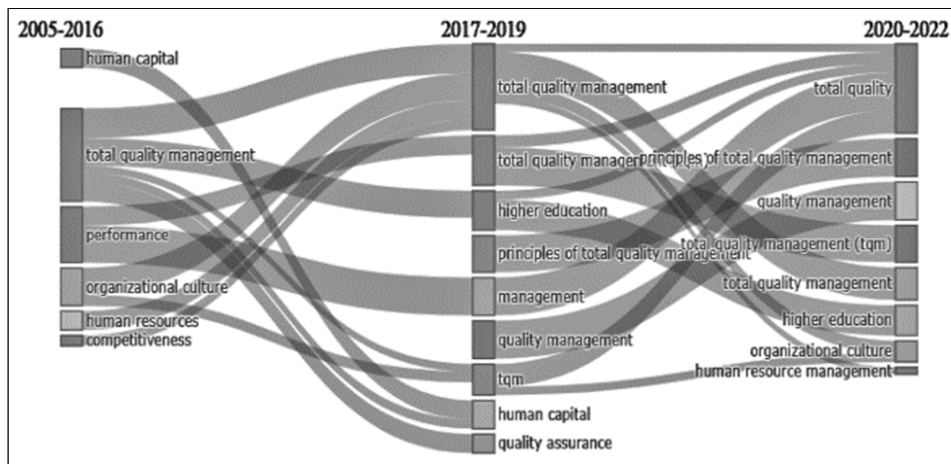


Figure 9 – Thematic Evolution

4.11 Three Plot Field Authors, Sources, and Keywords

The study used this analyse to compare the keywords used by the top authors in the top journals, based on Fig. 10, the most productive authors focused closely on the same keywords mapped in Fig. 8 and Fig. 9.

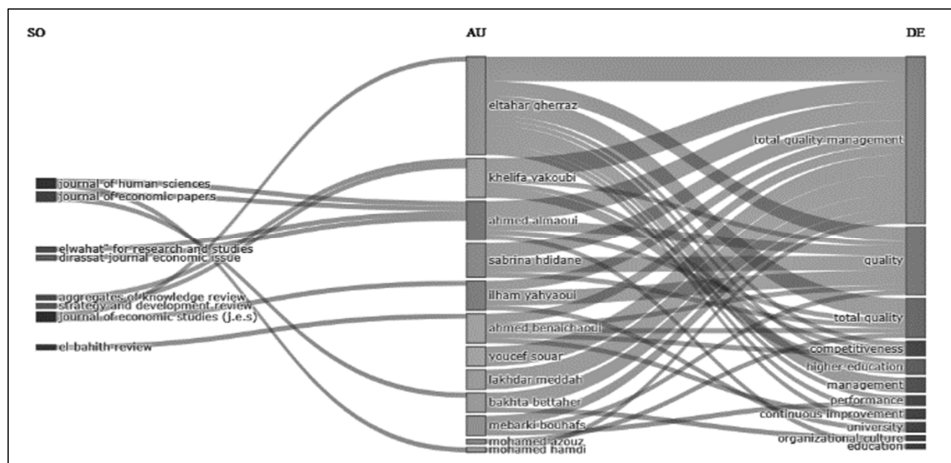


Figure 10 – Three Plot Field Authors, Sources, and Keywords

4.12 Empirical Studies Themes

To gain an intellectual structure, and sustain our discussion we launch in our paper the empirical studies Analysis which relies on data processed that generate outputs in the form of Tab. 6, and Fig. 8 and Fig. 9 for exploring the approach, progression, country, statistical tools, the hosting sectors, and identifying research gaps and perspectives in the field.

The findings reveal that 54.87% of the TQM studies used an empirical approach, recording an increase from 0.47% in 2009 to 92.05% in 2022, this indicate a growing interest and use of TQM in organisations in order to upgrade the quality of products or services; also 85.05% of them were undertaken in Algeria, mainly in the industrial sector (37.38%), followed by the education sector (29.44%) and the service sector (26.17%). However, the thematic evolution and three plot field were not covered by the figured keywords, even they formed a focus of interest in field, so in some areas like industrial sector, researchers did not adequately include the right keywords.

Table 6 – Sectors Hosting Empirical Studies

| Sector | Education | Industrial | Health care | Service |
|--------|-----------|------------|-------------|---------|
| N | 63 | 80 | 15 | 56 |
| Rate | 29.44 | 37.38 | 7.01 | 26.17 |

Notes: N – Number of empirical papers by sector.

5 CONCLUSION

In conclusion, the TQM approach is a broad topic since both the Quality can signify different things to different people and this multidimensional approach tends towards a dynamic management system that touches or comprises evolved items: business culture, values, principles, strategies, processes, tools, and techniques. Thus, it is difficult to assure an extensive coverage of TQM topics. The field of TQM research on different scientific platforms has become rich and multidisciplinary. Given the profusion of papers on TQM, it becomes objective and rational in local platform to analyse diverse aspects of the research, including publication trends, most productive authors, top contributing sources, assessing empirical studies, focusing on the geographic centrality of empirical studies, their hosting sectors, research advancements, and conceptual structure gaps. In our paper, we pick out the ASJP database to address a bibliometric analysis associated with articles that have investigated the TQM topic. Our work consisted of reporting on 390 publications performed and published during the period 2005-2022; the findings of this research are shaped as follows:

5.1 Ex Post Facto and Current Main Outputs

The research production on TQM increases yearly by 2.72 from 2005 and follows the equation $Y = 2.72x - 4.20$; (94.10%) of papers are written in Arabic and (3.59%) in English. The business sector accounts for (50.52%), followed by the multidisciplinary sciences with (28.98%), and the human and social sciences (15.89%). The most prominent authors in order are: Hamdi (2021), Yakoubi, and Gherraz (2020); the most productive institution in terms of TQM research (30 papers) is Algiers University 03; the J.E.S. and Aggregates of Knowledge Review are the two most performing journals in publishing research on TQM.

Keywords “Total Quality Management”, “University”, and “Higher Education”, are strongly used, while “total quality management”, “total quality”, “education”, “performance”, and “university” are the most co-occurred keywords. 54.84% of the researches contained an empirical approach. Even though empirical studies began in 2009, they gained popularity during 2016-2022, and 85.05% of them were conducted in Algeria, the empirical studies were conducted at different organisations’ levels, and belonged to the four major sectors: Industrial (80), Education (63), Service (56), and Healthcare (15).

5.2 Trends for Future

In the future, we can expect that researchers continue to focus on how to practise or embrace the principles of TQM in business and economics while the potential of TQM will be explored in interdisciplinary research; they may also turn to investigate the impact of TQM on society and personal well-being in the humanities and social sciences. Researchers who write in English will have more opportunities for scientific collaboration. The most productive Algerian researchers in TQM have opportunities and prospects for scientific collaboration.

Keywords as Industrial, Health care and Service, could constitute knowledge and empirical gaps in the TQM field worth to be covered; In the future, researchers should consider monitoring the themes and topics that these authors covered based on the keywords they used in their papers, to gain insights into their research interests; Total quality management performance and higher education are the most explored topics from Motor themes (Relevant and current), organisational culture as emerging theme in the field had significant growth from 2006 until 2022 worth to be studied, themes like total quality or continuous improvement are important for the TQM research but are not yet well developed, which lead scholars in the future to perform further works.

5.3 Implications of the Study

As we have seen, TQM appeals to both academics and practitioners. However, it is apparent that practitioners utilize the method because they want to increase their results and improve their procedures in order to make their organisations sustainable. On the other side, academics use them researches to shed light on subjects that are either unclear or have worldwide significance. So, the outcomes of TQM projects are fascinating to researchers and practitioners alike, as they could discover a systematic approach to problem-solving and the generation of well-reasoned arguments grounded in facts rather than personal beliefs.

5.4 Recommendations for Future TQM Research

In the study prospects, there are opportunities for further research in the field of TQM. These include measuring TQM using bibliometric in other databases or studying TQM utilizing a variety of qualitative and quantitative methods. Previous research lacks authorship collaborations, which could enrich future

works on the application of TQM in other areas. Additionally, with regard to the issue of total quality, it is necessary to: (1) The work environment focuses on the most important principles and practices of TQM; (2) Adopting permanent training courses for workers to get acquainted with the latest developments in the field; (3) Developing scientific standards when selecting members of the Quality Centre. Finally, it is important to reduce the centralization of administrative decision-making.

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Conceptualization, B.R. and H.M.; Methodology, B.R. and H.M.; software, B.R.; Validation, B.S., H.M.; and B.R.; Formal analysis, B.R.; Investigation, B.R.; Resources, B.R.; Data curation, B.S.; Original draft preparation, B.R.; Review and editing, B.R.; H.M.; Supervision, B.R. and H.M.

CONFLICTS OF INTEREST

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