

Cawangan Negeri Sembilan Kampus Seremban

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Enhancing Research Impact through Bibliometric Analysis

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The Faculty of Accountancy, UiTM Cawangan Negeri Sembilan, Kampus Seremban, organised a workshop titled "Bengkel Gerak Gempur Penerbitan Jurnal Berindeks: Penulisan Bibliometric Analysis" on 5 February 2025. The workshop, a collaborative program with Perpustakaan Tun Abdul Razak, features En. Syaiful Hisyam Saleh, a librarian with extensive expertise in bibliometric analysis. His talk provided invaluable insights into effective research strategies for publishing in high-impact journals.

Key Insights from the Workshop

En. Syaiful emphasized several crucial strategies for researchers looking to enhance their bibliometric analysis. Among his key recommendations were:

Identifying **uptrend themes** – Researchers should focus on emerging research areas rather than declining ones to ensure relevance and impact.

Selecting **general keywords** – Using broader search terms helps retrieve a wider range of articles, improving the comprehensiveness of the analysis.

A minimum of **500 articles** is recommended for meaningful bibliometric analysis.

Choosing the **best reference articles**.

Use **B!SON** – **The Open-Access Journal Recommender** to locate high-quality, free-fee journals while remaining cautious of predatory, unindexed publications or hijacked journal.

Combining data from **multiple databases**, such as Scopus and Web of Science (WoS), increases the reliability and depth of bibliometric analysis and has more comprehensive coverage of the dataset.





Hands-on Training: Conducting Bibliometric Analysis Using R Studio

The workshop also provided a practical session on combining bibliometric data from multiple databases and analysing it using **RStudio**. Participants learned a step-by-step approach, covering:

Step 1: Exporting articles from the Web of Science database

To find relevant articles, you may go to Advanced Search and enter the keywords in the search bar. Under the tab All Fields, you may choose Topic and click Add to query. You may choose And, Or, Not to diversify your search results and click Search. The search results will appear, and we can use the filters on the left-hand side to refine results by publication year, document type, etc. To download the bibliometric data from WoS, follow these steps:

- (1) Click "Export", select the file type: "BibTeX" (Figure 1).
- (2) Choose the record options: "Records from 1 to xxx (total search result for your keyword)". The data can be downloaded at a maximum of 1000 records per session only. If your data search is more than 1000, you may continue to download the remaining data in the next session. Please continue the download process from 1001 to the end of the data.
- (3) Click "Export" to download the file.
- (4) Rename the exported file for easy reference (e.g., "wos.bib"). Be mindful of capitalization (e.g., "WOS" vs. "wos").
- (5) Save the file in a designated folder like "**Biblio Work**", where it will later be combined with **Scopus** data.



Figure 1: Web of Science database





Step 2: Exporting articles from the Scopus Database

- To download the bibliometric data from Scopus, follow these steps:
- (1) Click "Export" and select the file type: "BibTeX" (Figure 2).
- (2) Choose the document range: "All documents on this page".
- (3) Click "Citation information", "Bibliographical information", "Abstracts & keywords", "Funding details" and "Other information".
- (4) Click **"Export"** to download the file.
- (5) Rename the exported file for easy reference (e.g., "scopus.bib").
- (6) Save the file in a designated folder, such as "Biblio Work," where the WoS data is already stored.

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Figure 2: Scopus database

Step 3: Combining bibliometric data using RStudio

We use the **RStudio** application to merge the bibliometric datasets from the Scopus and WoS databases (Figure 3). This approach requires coding (entering commands) and enables the combination of data while removing duplicate articles to ensure accuracy of analysis. The steps are as follows:

- (1) Download and install R and RStudio (https://posit.co/download/rstudio-desktop/).
- (2) Open RStudio.
- (3) Go to Session → Set Working Directory → Choose Directory → Find and choose the folder of "Biblio Work".
- (4) Click "Open" and you will see a command in RStudio: setwd("C:/Biblio Work")
- (5) Enter the command to load the bibliometrix package: library(bibliometrix)
- (6) Enter the command to import and convert (standardize) the Scopus file: S = convert2df("scopus.bib", dbsource = "scopus", format = "bibtex")
- (7) Enter the command to import and convert (standardize) the Web of Science file: W = convert2df(''wos.bib'', dbsource = ''wos'', format = ''bibtex'')
- (8) Enter the command to remove duplicate articles: **Database = mergeDbSources(S, W, remove.duplicated = TRUE**)
- (9) Enter the command to read, write, and edit Excel file: **library(openxlsx)**
- (10) Enter the command to export the combined dataset: write.xlsx(combined,"combined.xlsx")
- (11) Enter the command: **biblioshiny** () and click **"Enter**". RStudio will automatically open **Biblioshiny** in the web browser. From there, you may generate results for the analysis purposes.



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Figure 3: RStudio

The workshop provided an empowering experience for us as lecturers, equipping us with the skills to strategically enhance our publication impact by mastering bibliometric analysis to identify key research trends, optimize literature reviews, and target high-quality journals effectively. Bibliometric analysis goes beyond the limitations of manual content analysis by casting a broader and more comprehensive net across the vast expanse of knowledge (Lim et al., 2024). With continuous practice and exploration, bibliometric analysis can become a powerful tool in strengthening research visibility and academic contributions to our university.

References

Lim, W. M., Kumar, S., & Donthu, N. (2024). How to combine and clean bibliometric data and use bibliometric tools synergistically: Guidelines using metaverse research. *Journal of Business Research*, *182*, 114760.

