

ADVANCE PROGRAM TO DEVELOP SCIENTIFIC RESEARCH SKILLS BY USING GOOGLE SCHOLAR TOOLS AMONG STUDENTS OF THE UNIVERSITY OF TABUK

PROGRAMA AVANZADO PARA DESARROLLAR HABILIDADES DE INVESTIGACIÓN CIENTÍFICA UTILIZANDO LAS HERRAMIENTAS DE GOOGLE SCHOLAR ENTRE ESTUDIANTES DE LA UNIVERSIDAD DE TABUK

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Abstract: Objectives: The main objective of this study is to determine the advanced program to develop scientific research skills by using Google Scholar tools among students in education and Art College at Tabuk University.

Methods: It is a retrospective cross-sectional study of a specific batch of students from the education and art collage at Tabuk University.

Result: There are statistically significant differences on the scale of scientific research skills using the tools of the scientific researcher from Google in pre-measurement and post-measurement after the application.

Conclusion: The study showed that the advanced program to develop scientific research skills by using Google Scholar tools among students of the university was statistically significant differences on the scale of scientific research skills using the tools of the scientific researcher from Google scholar tools.

Keywords: Advance, Google Scholar tools, Scientific research, University.

Resumen: Objetivo: El objetivo principal de este estudio es determinar el programa avanzado para desarrollar habilidades de investigación científica mediante el uso de herramientas de Google Scholar entre estudiantes de educación y Art College en Tabuk University.

Métodos: Es un estudio transversal retrospectivo en un grupo específico de estudiantes de educación y collage de arte en la Universidad de Tabuk.

Resultado: Hay diferencias estadísticamente significativas en la escala de habilidades de investigación científica utilizando las

herramientas del investigador científico de Google en la medición previa y posterior a la aplicación.

Conclusión: El estudio mostró que el programa avanzado para desarrollar habilidades de investigación científica mediante el uso de herramientas de Google Scholar entre estudiantes universitarios presenta diferencias estadísticamente significativas en la escala de habilidades de investigación científica utilizando las herramientas del investigador científico de las herramientas académicas de Google.

Palabras clave: Ventaja, herramientas de Google Scholar, investigación científica, Universidad.

INTRODUCTION

Google Scholar is one of the widely used full-text search engines for scientific publications of all formats and disciplines, also used as indexing by various indicators. At the moment, it is the world's best program for scientific publications, which include articles, dissertations, books, abstracts, and reports published by scientific literature publishers, professional associations, universities, and other scientific organizations. (Falagas, M. E et al; 2007)

The author of Google Scholar gives the chance to form a public page on which scientific interests may be indicated, a listing of publications indicating the citing publications for each of them, also as citation statistics for all indexed publications. Publication information also can be added manually. (Anker, M. S et al; 2019).

The Advantage and Disadvantages of Google Scholar

The clear advantage of google scholar is its easy availability to figure with the bottom in an exceedingly simplified version, as a research engine, neither preliminary registration nor payment to be used is required, unlike similar services. The search is implemented by topic, author, place and time of publication, the repositories of deposited articles and the repositories of universities. (Thoma, B et al; 2019).

The undoubted advantage of Google Scholar may be a great deal of data, including publications from everywhere on the planet. (Giustini, D et al; 2013). Greater coverage of the platform allows obtaining more accurate scientometric indicators, which are not inferior in accuracy to the results of comparable databases.

Disadvantages of google scholar include that google scholar is not without its drawbacks. The foremost critics of them are that the insufficient coverage of some publications that refused to submit their journals for indexing. The database contains a major number of pseudoscientific publications; this is often because of the platform's desire to index as fully as possible works of varied profile.

Some scholars believe that any text with links published on the net is going to be counted by Google Scholar. This perception could also be why some believe that anyone can publish "ghost" articles online to enhance their citation rank. Google Scholar only indexes scientific publications. As their website states,

“we work with scientific publishers to index peer-reviewed articles, abstracts, preprints, abstracts and technical reports from all areas of research. (Kalcioğlu, M et al; 2018). Some unscientific citations, like tutorials, library reviews, and editorials, make it into the rankings. However, random incidents of this sort are unlikely to affect citation ratings. Therefore, while some exaggeration of citations is feasible in Google Scholar, in many disciplines this can be preferable to significant and systematic underestimation of scientific citations in ISI or Scopus (Nourbakhsh, E. et al; 2012).

Google Scholar's Downsides

Google Scholar's downsides are too exaggerated renowned information and humanistic discipline scholar, has published several highly critical articles about Google Scholar. One can understand why deans and university administrators assume that Google Scholar provides unreliable data⁶. However, concerns the inconsistent keyword search results on Google Scholar, which are irrelevant for author and journal searches, which is what most scholars use to publish or perish. For such an exploration:

Google Scholar citation rates are reliable and insensitive to random errors. Google Scholar's syntactic analysis has improved significantly since critics noted their mistakes.

The remaining errors of Google Scholar are random instead of systematic. ISI and Scopus contain biases in their calculations and do not account for several high-quality journals, books, and book chapters and conference proceedings. Therefore, the refusal to use Google Scholar thanks to alleged search syntactic errors cannot be considered rational. It is even as illogical to assume that ISI is infallible just because it charges a high subscription fee. (Groote, S. L et al; 2012).

Science may be a cognitive sort of act that is geared toward developing new theories, methods, and discoveries. Making such a huge breakthrough is impossible without research, which involves taking concrete actions to get new data. Scientific research involves analyzing this situation, specifying existing problems, and identifying the simplest ways to resolve them, to seek out a replacement way of influencing the matter, researchers use the subsequent measures: observation, experiment, survey, analysis, comparison, etc.

The research project is not only an impetus for the event and birth of something new, but also a specific way of fixing the invention, since the complete course of the work done is recorded within the variety of an FQP, dissertation, monograph, scientific article, etc. (Freeman, M. K et al; 2009).

Google Scholar Citations to Trace Article Citations

The Google Scholar Citation Index may be a statistical tool for ranking scholars. The system also implements the binding of an individual to an academic institution, this needs that publications indicate the official name of the university or use a company email address. (Banks, M. A et al; 2005).

Such scientometric parameters as citation statistics, h-index, and i10-index are measured on the idea of the platform. Within the profile settings, it is possible to line automatic notifications when new links to publications appear, still as when new works appear and therefore the Hirsch index changes. Additionally, to analyzing indicators for specific authors, it is possible to see the foremost-cited publications, which allows choosing more cited journals for publication. Analyzing the benefits and downsides of the service, it will be argued that, its use is convenient and simply accessible since it combines the reliability of statistical indicators and vast amounts of data.

That is why its use is becoming more and more popular among the scientific community. At the identical time, the bottom features a status– it is included within the reporting criteria of educational organizations on research activities. (Nourbakhsh, E et al; 2012).

Scientific Research: Work and Creativity

Scientific research relies on actions such as:

Problem recognition.

Determination of its symptoms and causes.

Identification of the properties and impact of the matter on the research object.

Study of theoretical aspects of the matter posed and the selected research topic: identification of origins, patterns, development, and assessment of this state.

Determination of ordinary, optimal, or non-ordinary methods for solving the problem.

Evaluation of the effectiveness of the proposed activities.

Scientific research could be a purposeful process, that is, work involving the implementation of specific actions (responsibilities), etc. Here the author must deeply study the chosen topic, determine the boundaries of the “permissible” by setting goals, objectives, subject, and object.

Thus, the research project allows the individual to realize new knowledge, strengthen the present store of data and skills, also as show an individual’s creativity in terms of text processing, choice of research methods, interpretation of the results, etc. (Groote, S. L et al 2012).

The Role of a Research Project in Modern Science and Social Life

Scientific research is supposed to develop something new, its scientific works that are the theoretical basis, a sort of “instruction” for brand spanking new technologies and inventions. With the assistance of the results of such projects, scientists can create better quality goods and products at rock bottom cost, new methods of treating diseases, ways to resist natural disasters, etc. Every research has its value. This criterion is expressed within the theoretical or practical significance of the project, its novelty. The author describes these postulates within the introduction and conclusion. They characterize the researcher’s contribution to the event of science and the industry: how the results obtained

and the proposed method will be applied in life, what it will bring, what to expect, etc. (Banks, M. A; 2005).

In the course of the research, the author can thoroughly study the difficulty of interest to him, collect the evidence base, and then, supported the information obtained from the analytical data, develop a singular method (algorithm). Thus, the research contributes to the event of science and acts because of the main mechanism for creating discoveries.

The Scientific Articles

Modern scholars distinguish different types of scientific articles. It depends on the subject chosen by the author and also the research method. The publication of scientific works is one of all the mandatory conditions for research activities, it is by the presence of published works that the potential of a scientist is assessed, further because of the weight of the contribution of experienced researchers to science.

A scientific article could be a logically completed study of a controversy, allotted through the appliance of a methodology; this can be the concept of a scientific article in its most simplified form. Any publication of this sort describes the relevance of the research, the goals, and objectives of the research, yet because of the essence of the innovation of the ideas presented. The author, by publishing his research, secures the copyright for one or another idea.

The Research Article

A research article may be a logically cohesive study. The publication of this category, as a rule, has the subsequent structure: Introduction, hypotheses, reasons that prompted the beginning of the study, moreover because of the expected results of the study experiment - an outline of the technique to collect data and make observations. (Tetsworth, K et al; 2017)

Research Problem

The study problem can be formulated in the following questions:

What is the effectiveness of an enrichment program for developing scientific research skills using Google's scientific researcher tools among students of Tabuk University?

Are there statistically significant differences between students' scores on the scale of scientific research skills using Google's scientific researcher tools in pre-measurement and post-measurement after applying for the enrichment program?

Are there statistically significant differences between students' scores on the scale of scientific research skills using Google's scientific researcher tools in the post and tracer measurements after applying for the enrichment program?

METHODS

It is a retrospective cross-sectional study in specific batch students from education and art collage at Tabuk University. In order to achieve the objectives of the study, the researcher relied on the semi-experimental research method, which is the most appropriate approach for this study, as the experimental approach is based on experiment, pre-application of the sample, post-application, then comparison, then analyzing and interpreting the results to reach acceptable generalizations.

a. Study Population

The study includes specific batch students at the faculty of Education and Arts in the subject of communication skills and scientific research at Tabuk University, Saudi Arabia.

b. Sample Size and Study Design

The sample size is 47 students from the faculty of education and Arts Division at Tabuk University.

c. Including Criteria

Specific batch students from the faculty of Education and Arts at Tabuk University.

d. Excluding Criteria

Students in other batches at Tabuk University, the faculty of Education and Arts.

Statistical Analysis

Data analysis will be done by statistical package for the social science (SPSS) and using simple statistical ratios consisting of frequency and percentages. AP- value to be significant, it should be less than 0.05.

Study Tools

The current study sought the effectiveness of an enrichment program for developing scientific research skills using Google's scientific researcher tools among students at the University of Tabuk, and the study tool consisted of:

First: The scale of scientific research skills using Google's scientific researcher tools includes (30) items and the researcher reviewed a number of relevant studies and research. The scale consists of three dimensions for each dimension (10) paragraphs:

1. The first dimension: scientific research skills.
2. The second dimension: steps for writing scientific research.
3. The third dimension: using the researcher engine.

Second: Enrichment program, the purpose of developing scientific research skills by using scientific researcher tools from Google among students of Tabuk University in the subject of communication skills scientific research.

Verification of the Validity and Reliability of the Scale

To check the validity and reliability of the scale was applied to measure a sample of (50) students from the University of Tabuk, and the results were as follows:

Reliability Statistics

The scale was calculated using Cranach's Alpha Coefficient, where the reliability coefficient for all paragraphs was (.937) (as shown in Table 1), which reassures the researcher to use the study tool as a tool to collect information to answer the study questions and to trust the results of its application.

The reliability of the scale was also calculated because the variance is equal here using Split Half Reliability in a way Correlation between Forms It was a coefficient of stability (0,967).

Validity of the Scale

This was verified using Internal Consistency. The internal consistency of the scale was made by calculating the correlation coefficient between the scores of individuals on each of the scale statements and the total score of the scale. It is evident from Table 2 that all transactions value correlation functions at the level of statistical significance (0.01).

Believe Arbitrators

The researcher has introduced a measure of the initial image on a group of arbitrators from teaching specialists staff members numbered eight (8) of the professors of education technology, education, psychology and pedagogy and teachers to benefit from their suggestions and opinions in determining the validity of terms and how they relate to the objectives of the study and the safety of the language. Truthfulness was verified by addressing the paragraph that obtained (90%) of the arbitrators' approval, and the paragraph that obtained the approval of (50% or less) from the arbitrators was deleted to obtain the higher paragraphs in the arbitration.

RESULTS

The First Question

The question states (Are there statistically significant differences between students' scores on the scale of scientific research skills using Google's scientific researcher tools in pre-measurement and post-measurement after applying for the enrichment program? to answer the question, a t-test was made for the differences between the pre and post-application of the three dimensions of the scale and the total sum of the pre and post applications, as shown in the following table:

It is evident from Table 3 that there are statistically significant differences on the scale of scientific research skills using the tools of the scientific researcher from Google in pre-measurement and post-measurement after the application of the enrichment program in favor of the post-application in all dimensions in the dimension of scientific research skills, after the steps of writing scientific research and after using the scientific researcher engine also, in the grand total, at a level of significance (0.01). This confirms the impact of the enrichment program on students in using the scientific researcher. Figure 1 shows the impact.

Table 1
Reliability statistics

Cronbach's Alpha	N of Items
.983	30

Table 2.
The internal consistency of the scale phrases

Pearson Correlation	N	Pearson Correlation	N
.871 (**)	16	.828(**)	1
.828(**)	17	.798(**)	2
.892(**)	18	.893(**)	3
.766(**)	19	.900(**)	4
.801(**)	20	.893(**)	5
.768(**)	21	.810(**)	6
.778(**)	22	.847(**)	7
.737(**)	23	.893(**)	8
.885(**)	24	.837(**)	9
.847(**)	25	.694(**)	10
.819(**)	26	.880(**)	11
.788(**)	27	.828(**)	12
.863(**)	28	.788(**)	13
.828(**)	29	.792(**)	14
.893(**)	30	.847(**)	15

* Correlation is significant at the 005 level 2tailed

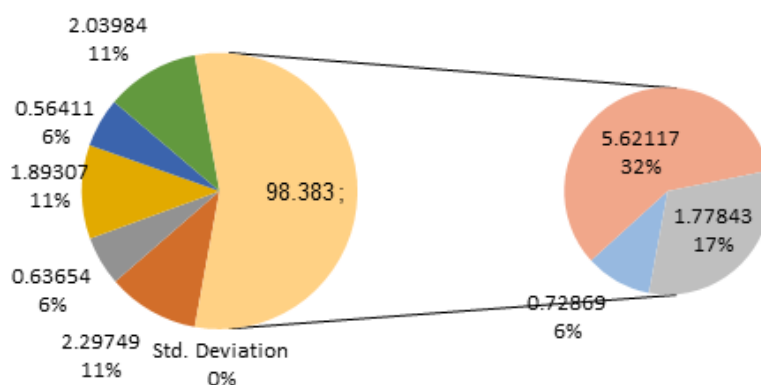
** Correlation is significant at the 0.01 level (2-tailed).

Table 3

The table shows the differences between students' scores on the scale of scientific research skills using Google's scientific researcher tools in the pre and post measurements

Dimension	Mean	Std. Deviation	t	df	Sig (2-Tailed)	Statistical sig.
Scientific research skills (pre)	18.9362	2.29749	26.071	46	.000	Statistical Function
Scientific research skills (post)	10.1702	0.63654				
Steps for writing scientific research (pre)	19.3617	1.89307	32.848	46	.000	Statistical Function
Steps for writing scientific research (post)	10.1702	0.56411				
Using the research engine (pre)	19.2766	2.03984	29.737	46	.000	Statistical Function
Using the research engine (post)	10.2340	0.72869				
Total (pre)	57.5745	5.62117	32.766	46	.000	Statistical Function
Total (post)	30.5745	1.77843				

* Correlation is significant at the 005 level 2tailed



The Second Question

The question states (Are there statistically significant differences between students' scores on the scale of scientific research skills using Google's scientific researcher tools in the post and tracer measurements after applying for the enrichment program?). To answer the question, a t-test was made for the differences between the pre and post-application of the three dimensions of the scale and the total sum of the pre and post applications, as shown in the following table:

Table 4 shows the differences between students' scores on the scale of scientific research skills using Google's scientific researcher tools in the post and tracer measurements after applying for the enrichment program. It is evident from the previous table that there are statistically significant differences on the scale of scientific research skills using the tools of the scientific researcher from Google in the two tracer dimensional measurements after the implementation of the enrichment program in favor of the tracer application in all dimensions

in the dimension of scientific research skills, after the steps of writing the scientific research and after using the scientific researcher engine as well as in the aggregate, at a significance level (0.05). This confirms the continued impact of the enrichment program on students in the use of the scientific researcher and generalized use in other academic subjects as shown in Figure 2.

Table 4
Pre and Post Application

Dimension	Mean	Std. Deviation	t	df	Sig (2-Tailed)	Statistical sig.
Scientific research skills (post)	10.1702	2.29749	2.606	46	.000	Statistical Function
Scientific research skills (traceral)	11.2128	0.63654				
Steps for writing scientific research (post)	10.1702	1.89307	2.357	46	.000	Statistical Function
Steps for writing scientific research (traceral)	11.0213	2.47148				
Using the research engine (post)	19.2766	0.72869	2.044	46	.000	Statistical Function
Using the research engine (traceral)	10.2340	2.4583				
Total (post)	57.5745	1.77843	2.406	46	.000	Statistical Function
Total (traceral)	30.5745	7.63270				

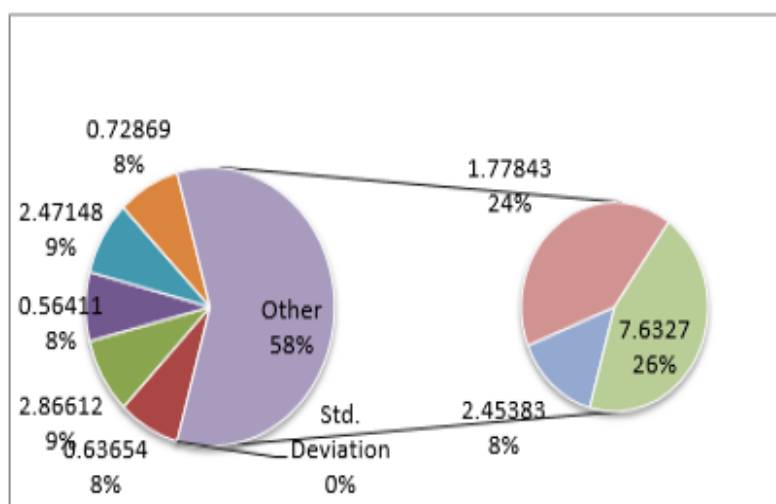


Figure.2:
Continued impact of the program

DISCUSSION

Google Scholar is one of the widely used full-text search engines for scientific publications of all formats and disciplines, also as indexing by various indicators. Site address, At the instant, it is the world's hottest program for scientific publications, which include articles, dissertations, books, abstracts, and reports published by scientific literature publishers, professional associations, universities, and other scientific organizations.

The existence of statistically significant differences on the scale of scientific research skills using the tools of the scientific researcher from Google in the pre

and post measurement after the application of the enrichment program in favor of the post application in all dimensions in the dimension of scientific research skills, after the steps of writing the scientific research, after using the scientific researcher engine and also in the total At the level of significance (0.01), which confirms the impact of the enrichment program on students in the use of the scientific researcher, and that the program has clear effectiveness for students and that they have benefited from it in providing the duties of the course and the existence of statistically significant differences on the scale of scientific research skills using the tools of the scientific researcher from Google in the two tracer dimensional measurements after the implementation of the enrichment program in favor of the tracer application in all dimensions in the dimension of scientific research skills, after the steps of writing the scientific research, after using the scientific researcher engine and also in the total At the level of significance (0.05), which confirms the continued impact of the enrichment program on students in the use of the scientific researcher and also generalization of use in other academic subjects. This result shows the extent to which students benefit from the archaeological program of the scientific researcher in presenting the requirements of the courses they study.

Several studies have found statistically significant differences on the scale of scientific research skills using the tools of the scientific researcher from Google in the two tracer dimensional measurement. The enrichment program contributed to providing students with the research projects required of them with different courses. The research project is not only an impetus for the event and birth of something new, but also a specific way of fixing the invention, since the complete course of the work done is recorded within the variety of an FQP, dissertation, monograph, scientific article, etc.

The researcher explained to students during the enrichment program the importance of using the search engine for the scientific researcher, its ease of use and the services it provides, as both emphasized. In terms of its functionality and features, the service is comparable to the Web of Science, the author of Google Scholar gives the chance to form a public page on which scientific interests may be indicated, a listing of publications indicating the citing publications for each of them, also as citation statistics for all indexed publications. Publication information also can be added manually.

These results are consistent with what is being, Google Scholar is one of the widely used full-text search engines for scientific publications of all formats and disciplines, also as indexing by various indicators.

The study also evaluated the significance of GS and found that this platform cannot be used alone particularly when the studies involve systematic reviews. The study analyzed those works in which the authors had demonstrated systematic reviews and the sources that they had used. The study found that among 506 titles, the use of Google Scholar was not prominent or showed too many results. Even the filtering capabilities of GS could reduce the records only up to the extent of 95%. The study found that the 506 papers that had been used by the authors of a systematic review cannot be retrieved easily from GS.

CONCLUSION

The present study aimed to enrichment program to develop scientific research skills by using Google Scholar tools among students of the university, the result showed there are statistically significant differences on the scale of scientific research skills using the tools of the scientific researcher from Google in the two tracer dimensional measurements after the implementation of the enrichment program in favor of the tracer application in all dimensions in the dimension of scientific research skills. in the two tracer dimensional measurements after the implementation of the enrichment program in favor of the tracer application in all dimensions in the dimension of scientific research skills, after the steps of writing the scientific research and after using the scientific researcher engine as well as In the aggregate, at a significance level.

REFERENCES

- Anker, M. S., Hadzibegovic, S., Lena, A., & Haverkamp, W. (2019). The difference in referencing in Web of Science, Scopus, and Google Scholar. *ESC Heart Failure*, 6(6), 1291-1312. <https://doi.org/10.1002/ehf2.12583>
- Banks, M. A. (2005). The excitement of Google Scholar, the worry of Google Print. *Biomedical Digital Libraries*, 2(1). <https://doi.org/10.1186/1742-5581-2-2>
- Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2007). Comparison of PubMed, Scopus, Web of Science, and Google Scholar: Strengths and weaknesses. *The FASEB Journal*, 22(2), 338-342. <https://doi.org/10.1096/fj.07-9492LSF>
- Freeman, M. K., Lauderdale, S. A., Kendrach, M. G., & Woolley, T. W. (2009). Google Scholar Versus PubMed in Locating Primary Literature to Answer Drug-Related Questions. *Annals of Pharmacotherapy*, 43(3), 478-484. <https://doi.org/10.1345%2Faph.1L223>
- Giustini, D., & Boulos, M. N. (2013). Google Scholar is not enough to be used alone for systematic reviews. *Online Journal of Public Health Informatics*, 5(2). <https://doi.org/10.5210/ojphi.v5i2.4623>
- Groote, S. L., & Raszewski, R. (2012). Coverage of Google Scholar, Scopus, and Web of Science: A case study of the h-index in nursing. *Nursing Outlook*, 60(6), 391-400. <https://doi.org/10.1016/j.outlook.2012.04.007>
- Kalcioglu, M. T., Ileri, Y., Ozdamar, O. I., Yilmaz, U., & Tekin, M. (2018). Evaluation of the academic productivity of the top 100 worldwide physicians in the field of otorhinolaryngology and head and neck surgery using the Google Scholar h-index as the bibliometrics ranking system. *The Journal of Laryngology & Otology*, 132(12), 1097-1101. <https://doi.org/10.1017/s0022215118002190>
- Mingers, J., O'Hanley, J. R., & Okunola, M. (2017). Using Google Scholar institutional level data to evaluate the quality of university research. *Scientometrics*, 113(3), 1627-1643. <https://doi.org/10.1007/s11192-017-2532-6>
- Nourbakhsh, E., Nugent, R., Wang, H., Cevik, C., & Nugent, K. (2012). Medical literature searches: A comparison of PubMed and Google Scholar. *Health Information & Libraries Journal*, 29(3), 214-222. <https://doi.org/10.1111/j.1471-1842.2012.00992.x>
- Tetsworth, K., Fraser, D., Glatt, V., & Hohmann, E. (2017). Use of Google Scholar public profiles in orthopedics. *Journal of Orthopaedic Surgery*, 25(1), 230949901769032. <https://doi.org/10.1177/2309499017690322>

Thoma, B., & Chan, T. M. (2019). Using Google Scholar to track the scholarly output of research groups. *Perspectives on Medical Education*, 8(3), 201-205. <https://doi.org/10.1007/s40037-019-0515-4>.