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MEASURING IMPACT OF UNIVERSITY RESEARCH GRANT: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Currently, there is an increasing concern on government funding on research in the education field. In general, research is an essential field for any public and private educational institutions. Research also provides a significant impact to increase the country's productivity, thus boosting its reputation globally. The main issue is how research grants funded by government can provide returns towards academicians, society, and the country. Thus, the objectives of this study was to identify indicators to measure impact of the university research grant. The systematic review of the literature method was conducted using two main journal indexed databases: Web of Science (WoS) and Scopus. From the analysis, the results showed that four themes and 24 sub-themes were connected to the research impact. The four themes were scholarly production impact (10 sub-themes), research advancement impact (8 sub-themes), policy implication (3 sub-themes), and health and economic impact (3 sub-themes), which were discussed in the results. In conclusion, investment in research is important to help various parties gain benefits as listed in the research advancement impact theme of this study.

Keywords: *Output, Outcome, Impact, University Grant, Systematic Literature Review*

1. INTRODUCTION

Research is a systematic scientific process in solving an issue. Generally, research is categorised into fundamental research and applied research, whereby fundamental research focuses on the analysis of existing theory, the development of a theory or the formation of a new theory. Meanwhile, applied research focuses more on current issues in the form of applications, which answers micro and macro issues.

The matured research will create new ideas or expand existing knowledge, translated into academic output through scholarly publications. This output is categorised as an innovation, classified as knowledge innovation, technological innovation, and social innovation that provides a greater impact. Therefore, research will produce output, outcomes, and impact covering knowledge development, new perspectives, social engagement, and networking.

Moreover, research is a crucial field in a public and private educational institution. Research significantly impacts and increases the country's productivity, thus raising the country's reputation globally. This situation is seen from the products and research results exhibited and involved in competitions both locally and internationally. Research output is measured quantitatively based on improvements to the existing systems or models. In fact, many experts and academicians are produced through various research fields.

[1] outlines two reasons to understand the impact of government expenditure is considered as a critical aspect. Firstly, unproductive use of government resources is waste or inefficiency and public support for R&D may crowd out private support [2]. Secondly, the understanding of

investment is important to be more productive in allocate the government expenditures. [3] studied examine the relationship between funding and research output at the level of the university or department. The results found that the constant returns to scale in research funding at the aggregate level, but some diminishing returns to scale at individual universities. While study of [4] examine the impact of federal research funding on university-level research output, instrumenting for funding with the alumni representation on U.S. Congressional appropriations committees. The results found that $1 million in federal research funding can produce 10 articles and 2 patents.

There is interest is growing rapidly in the evaluation of non-academic benefits or "impacts" arising from research, as funders and Governments around the world increasingly seek evidence of the value of their research investments to society [5] [6] [7].

[8] mentioned that the measurement is an essential in considering that researchers are increasingly expected to be accountable and produce value for money, especially when their work is funded from the public funds. The funders find to demonstrate the benefits from their research spending and there is concern to reduce waste in research expenditure. By highlighting how (and how effectively) resources are being used, impact assessment can inform strategic planning by both funding bodies and research institutions.

The study of [9] stated the frameworks and methods for measuring research impacts. The Research Impact Framework was developed by [10] and draws upon both the research impact literature and UK research assessment criteria for publically funded research, and was validated through empirical analysis of research projects. The framework is built around four categories of impact, namely i) research related, ii) policy, iii) service, and iv) societal. Meanwhile the framework proposed by [11] is an adaption of the Canadian Academy of Health Science impact model [12] in light of a systematic review and includes five broad categories of research impact, namely i) advancing knowledge, ii) capacity building, iii) informing decision making, iv) health and other sector benefits, and v) broad socio-economic benefits.

[5] analysed the existing theoretical and methodological framework for impact evaluation using an adapted Grouded Theory Analysis by [13]. There are two main theoretical constructs emerged from the analysis of literature in which research impact evaluations can be arranged or categorised. First, the evaluation designs with a summative focus on achieving, evidencing and claiming impacts and being accountable is referred to as external evaluation [14] versus a design with a more formative focus on ongoing monitoring, learning, adaptation and taking epistemic responsibility for the generation of impact is referred as internal evaluation by [14]. Next is evaluation designs that provide evidence that a body of research was a necessary, for instance, an important contributing factor or sufficient such as sole attribution or cause of impact.

The current focus on research impact reflects a longer standing concern with the societal return on public funding of science [15] [16] [17]. The study of [15] found that (i) a consensus that researchers have a responsibility to articulate the impact of their research to non-academic audiences; (ii) an assumption (most explicit in the REF impact case studies) that this impact can be documented and measured; (iii) a belief that the distribution of research funding should (at least to some extent) reflect researchers' ability to achieve 'impact'; and, following from this, (iv) an expectation that researchers' own efforts to achieve research impact will play a significant role in explaining why some research has impact beyond academia and some does not.

Hence referring to these facts, the main issue is how research grants funded by government can provide returns towards academicians, society, and the country. Thus, this study will conduct a systematic literature review (SLR) that is based on indexed databases and analysis to indicates the indicators used in measuring impact of University Research Grant. This paper is organized as follows i) introduction, ii) methodology, iii) result, iv) discussion and v) limitations and vi) conclusion.

2. METHODOLOGY

A detailed methodological approach is necessary in any kind of literature review [18]. This section outlines the methodological approach that will provide a brief explanation of the current state of research study regarding the impact of university research grant. The systematic literature review guidelines proposed by [19] were adopted and explained.

[20] [21] defined a systematic review as quantitatively and qualitatively recognising, combining, and evaluating accessible data in exchange for producing observationally determined response to a research question. A systematic review has multiple advantages, such as strengthening the reviews via a transparent article retrieving process, creating a more prominent and wider area of research, and minimising research bias. From this fact, the researcher can generate quality evidence with more significant results [22].

[23] [24] [25] stated that a successful review consisted of three major steps; namely; planning the review, conducting the review and reporting the review.

The second step is when conducting the review, the researchers identify relevant study, choose primary studies, assessing study quality, extracting and synthesising the required data. The final step is reporting the review, the researchers will analyse the findings and results in the report to disseminate from the literature review [26] [27].

Planning phase: The first step is the planning stage. The researchers will acknowledge the requirement of a current study by identifying review objectives, specify research questions, develop a review protocol and validate the review protocol. It is essential to determine the research questions that the systematic review will address as well as to define the criteria regarding both literature sources and keywords search [28]. According to [19], research question identified as one of the important components to drive the entire SLR methodology. The selection of too broad of a research question is a normal mistake made by young researcher. From a broad research question will lead to get a big amount of results and making the review unmanageable [23] [29]. However, the research questions have been selected for this current study are as follows:

RQ1: How to measure research impact?
RQ2: What are the indicators of research impact towards academic?
RQ3: What are the indicators of research impact towards health and economic?
RQ4: What are the indicators of research impact towards industry and community?
RQ5: What are the indicators of research impact towards policy?

Inclusion and exclusion criteria: [18] stated that the research protocol serves as the road map towards its answer after a question has been formulated. As mentioned by [19], the critical part in SLR is determining and assessing the protocol. The study selection criteria is one of the components in protocol review which is consisted of inclusion and exclusion criteria to decide the selected review of the study [26]. Table 1 is explained the inclusion and exclusion criteria to indicate each result.

Table 1: Inclusion and Exclusion Criteria

No.	Inclusion	Exclusion
1.	Study in the area of impact for university research grant	Does not related to measure impact for university research grant
2.	Submitted to or/and published in the journal articles	Submitted to or/and published in the proceedings paper, conference review, review, book chapter, book, note, undefined, early access, editorial material and reprint
3.	Content are written in English can be understand	Studies in non-english, not well-structured and not described in detailed

Search terms: A suitable search term plays an important part in SLR that can derived from the research question. It can allow the researcher to identify and generate the relevant results related to the selected study. Otherwise, it also can minimise the amount of time and effort to acquire the data of the study. In search string, the researcher using Boolean AND, OR, quotation marks and asterisk for advanced search. The search term that were used in this study shown as below:

- "output*"
- "outcome*"
- "impact*"
- "grant*"
- "fund*"

Data sources: Two electronic database that has been selected and used to perform this study which are Web of Science and Scopus that includes journal articles only. Table 2 presented the two selected database and it's url. The results of search term from these two databases provide the

researcher to focus on the title, abstract and keyword in order to make sure to obtain adequate materials for this study. Furthermore, the duplicates papers are identified in each database were eliminated.

Table 2: Selected Databases and URLs

Database / Source	URL
Web of Science	https://www.webofknowledge.com
Scopus	https://www.scopus.com

Data collection

The data collected from each of the papers includes elements as follows:

1. Paper titles.
2. Paper author(s).
3. Year of paper's publication.
4. The name of journal in which the paper is published in.
5. The indicators and measurements used to measure research impact.
6. Themes and sub-themes have identified in the study.

Data analysis

The data collected will be presented and discussed to answer the stated research questions:
RQ1: To measure the research impact of this study, the indicators and measurements from previous studies will be identified and discussed.
RQ2: The indicators of research impact towards academic will be applied and classified.
RQ3: The indicators of research impact towards health and economic will be applied and classified.
RQ4: The indicators of research impact towards industry and community will be applied and classified.
RQ5: The indicators of research impact towards policy will be applied and classified.

Conducting the review: This study review was conducted using two main journal indexed databases, namely Web of Science (WoS) and Scopus. The researchers agreed to focus only on the journal (research articles) because seeing that journals act as the primary source that offers empirical data. The identification of the research and retrieving the studies from the data source by using the search term as described. Eventhough there are various online database such as Google Scholar, MEDLINE (through PubMed), EMBASE, Scopus, CINAHL, Web of Science of the Thomson Reuters and The Cochrane Controlled Trials [30] but this study only focused with these two database as their article journals are confirmed indexed that represent the quality of the published articles. [31] revealed that Web of Science and Scopus are two world-leading and competing citation database. It is commonly used in academic articles in the most countries/regions. There are three main stages in the process of systematic review in choosing various relevant articles for the study before implementing the process of paper selection, as followed:
Step 1: Firstly, the identification of keywords. The selected keywords of study are resulted from search term defined. The search strings on Scopus and WoS database were developed in January 2021.
Step 2: The Table 3 shown the generic search expressions have been stated. [Example of expression: A_1 OR A_2 AND B_1 OR B_2 AND C_1 OR C_2 AND D_1 OR D_2 AND E_1 OR E_2]
Step 3: By using the search string in the Scopus and WoS database, the generic search expression is presented.

Table 3: Domain and Keywords

Domain	Key	Keywords/String
Output	A	A_1 : Output* A_2 : Research Output*
Outcome	B	B_1 : Outcome* B_2 : Research Outcome*
Impact	C	C_1 : Impact* C_2 : Research Impact*
Grant	D	D_1 : Grant* D_2 : Research Grant*
Fund	E	E_1 : Fund* E_2 : Research Fund*

The process of paper selection of the study is presented in Figure 1. In this phase, the results of keywords searching are 705 papers. The researcher eliminated about 230 duplicates papers. From remaining papers are 475 papers, the researcher rejects 215 papers after using inclusion and exclusion criteria screening. There are 260 papers available for full text reading. After that, 212 papers are eliminated due to unrelated topic of research impact. Finally, the researcher only selects 48 papers to conduct a review after data extraction and analysis.

Reporting the review: The final step is reporting the findings and writing the review. The researcher publish the report based on the results of the study to answer the stated research questions.

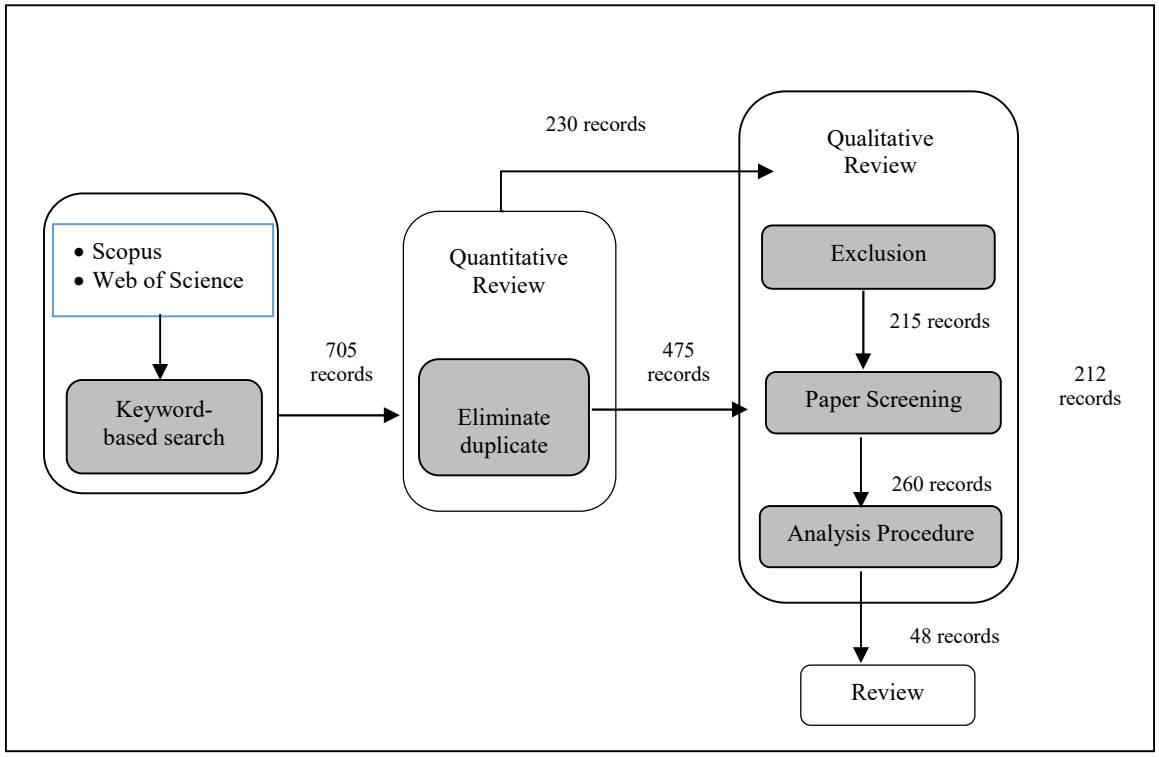

Figure 1: Flowchart of Systematic Literature Review Process and Number of Included and Excluded Papers in Each Step (Adapted from: [27])

3. RESULT

This section described the findings and results of the research study. A total number of 48 articles of studies has been chosen and reviewed from Scopus and Web of Science. Figure 2 shows the selected articles has been classified based on to its years of publications.

To answer research question RQ1, the researchers identified the indicators and measurements used to measure research impact from previous studies as shown in Table 4. In order to answer research question RQ2, Table 5 shown the indicators of research impact towards academic.

In addition, Table 6 presented the indicators of research impact towards health and economic to answer RQ3. Furthermore, to answer research question RQ4, Table 7 provides the indicators of research impact towards industry and community. Lastly, Table 8 presented the indicators of research impact towards policy to answer research question RQ5.

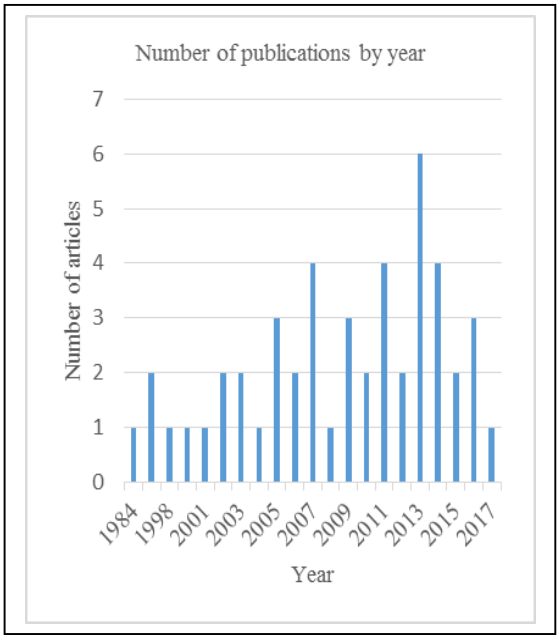

Figure 2: Number of Publications by Year

4. DISCUSSION

In this section discuss the answers to our research questions.

RQ1: How to measure research impact?

To answer the research question RQ1, from previous studies the researchers identified the indicators and measurements used to measure the research impact.

This section will begin with a research process review, requiring inputs and generating findings in terms of outputs, outcomes and impacts. It will examine the relevant indicators based on previous studies that consider the research findings and effectiveness.

Effective and quality research was a key factor in generating high-impact. Therefore, [32] introduced a framework to assess research effectiveness, efficiency and equity. The measurement considered academic performance and non-academic outcomes. Inputs, methods, outputs and research results and impacts were also included in the research framework.

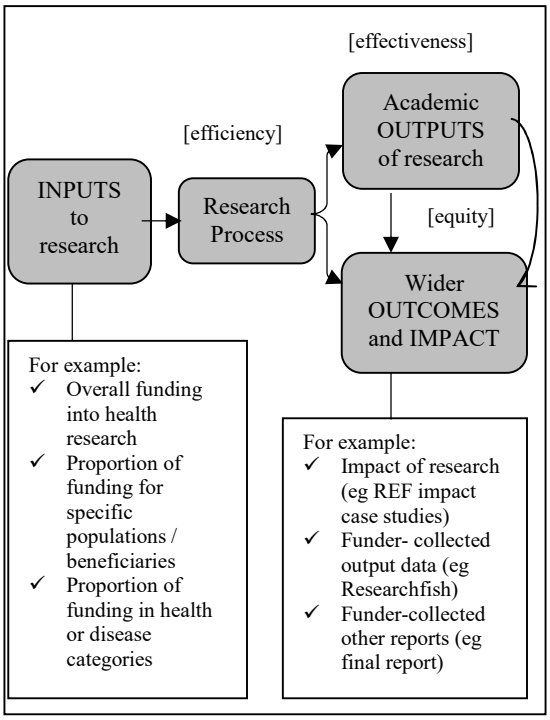

Figure 3: Framework of Inputs, Process, Outputs, Outcomes and Impacts of Research (Adapted from [32])

Based on Figure 3, the research began with inputs and generated outputs, outcomes and impacts through the research process. The measurement of competency was based on the research method that included input productivity to generate output. Also, academic output was an element to test study efficacy. At the same time, results and impacts are two vital aspects of equity measurement.

In detail, the inputs covered the amount of funding, knowledge and other resources required in research. The research method involved all research activities, including developing a theoretical framework, research framework, data collection, data analysis and reporting. These research activities would contribute to the research findings, including research objectives or outputs. Outputs should include scientific writing in books or journal articles and human capital or products or technology production. Moreover, the outcomes and impacts were more comprehensive and productive than the outputs.

Most researchers measured output as a micro research achievement. [33] measured output as a direct service product of combining inputs and processes. The outputs could be measured quantitatively, consisting of services provided, human capital produced, books published, reference questions answered and time spent for the raw material process. Meanwhile, [34] measured research outputs involving knowledge-generated indicators and publications, new products and services, and whether they are positive or value-added.

Most studies, however, measured results and impacts using two independent measures. According to [34] [35], there was an improvement of interest in measuring research impact assessment methods beyond the academic world by researchers in the United Kingdom from 2009 to 2011 [36] and developed in Europe [37], the United States [38] and Australia [39].

The Research Excellence Framework (REF) [40] showed the issue of the potential of university research to affect society positively, especially quality of life [40], institutions [34], economic growth [40] [41] [42], social well-being [40] [41] [42], science and community development [43], environment [40] [41] [42], and culture [40] [41] [42].

In particular, economic benefits included an increase in economic growth and wealth creation. Social benefits entailed improvements in people's health and quality of life. Environmental benefits included environment and lifestyle improvements. Meanwhile, cultural benefits stimulated creativity in society. Other direct impacts included legislation, practice, capacity or other changes such as contributions to policies and policy discussions; the development of new tools, resources and technologies or personal and professional development.

Accordingly, [34] measured the specific effect on research funders. [40] defined impact as a consequence, change or benefit to the economy, society, culture, policy or public service, health, environment or quality of life beyond academics. According to [44], impact also involved translating knowledge and research through various complex processes, individuals and organisations. It also showed indirect contributions by specific individuals, advanced research funding, strategies or organisations. In addition, according to the [42], impact was defined as the contributions of research on the economy, society, environment and culture beyond academic findings.

Direct and indirect impacts could be achieved in the short and long term. [45] stated that these effects involved long-term transformative impact assessment on society. Short-term effects should also be measured to generate long-term effects. Research could also attract and retain donors and support social institutions [46].

Therefore, the suggested indicator by [34] included changes in behaviour and economic and intellectual wealth as an interaction between university business and community. There were four primary constructs generally as shown in Table 4.

Most researchers presented academic and non-academic outcomes particularly in socioeconomics, which was supposed to be measured mutually. [34] claimed that UK research fund assessment should measure impact beyond academic aspects in line with academic and socioeconomic evaluation by foreign countries, which measures the entire assessment and transformation by the research.

Table 4: The Primary Constructs Identified

Primary Constructs	References
Scholarly production impact	[47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60], [61]
Research advancement impact	[50], [51], [57], [59], [60], [61]
Policy implications	[50]
Health and economic impacts	[50], [51]

RQ2: What are the indicators of research impact towards academic?

To answer RQ2, there are 10 sub-themes in the theme of scholarly production impact as shown in Table 5. From the findings, the 10 sub-themes listed are the total publication activity [10] [62] [63] [66] [67] [74] [75] [76] [83] [90] [95], the number of publications in peer-reviewed [51] [62] [64] [66] [67] [68] [71] [74] [77] [78] [79] [81] [82] [83] [84] [86] [87] [93] [95] [98] [99] [103], number of publications in top-ranked journals [69] [73] [88] [104], a journal impact factor (IF) [10] [51] [59] [69] [70] [71] [72] [73] [74] [75] [76] [79] [80] [83] [84] [85] [86] [88] [95] [100] [105], number of authors [85] [88], publication type [66] [69] [73] [96], journal size [69], H-index [51] [59] [74] [75] [76] [82] [95] [97], [99], number of citations per article [10] [59] [60] [62] [69] [70] [71] [72] [73] [74] [75] [79] [80] [81] [82] [84] [86] [88] [89] [90] [92] [95] [96] [97] [98] [102] [103] [104] and number of times the review is cited [59] [70] [72] [73] [79] [80] [81] [84] [97] [104]. The 10 sub-themes of this study are vital for maintaining the quality and performance of a publication, as supported by [106]. Subsequently, [106] stated that scholarly production refers to the number of articles published, where the effects obtained from the publication is as significant as the number of publications issued. Thus, the scholarly production impact is necessary to help develop research studies through research advancement achieved. [108] [109] found that higher education around the world has been considered a prominent service provider to the masses of population according to a 20 to 30 percent of population. The government become more responsible as the role of caretaker of public institutions and more accountable to the tax payers because governments no longer can afford to subsidise higher education and the traditional approach of low or free tuition fee has been considered a regressive use of taxpayers' resources [109].

Table 5: Identified Themes and Sub-themes of Research Impact towards Academic

Themes	Sub-Themes	References
Scholarly production impact	Total publication activity	[10], [62], [63], [66], [67], [74], [75], [76], [83], [90], [95]
	Number of peer-reviewed publications	[51], [62], [64], [66], [67], [68], [71], [74], [77], [78], [79], [81], [82], [83], [84], [86], [87], [93], [95], [98], [99], [103]
	Number of publications in top-ranked journals	[69], [73], [88], [104]
	Journal impact factor (IF)	[10], [51], [59], [69], [70], [71], [72], [73], [74], [75], [76], [79], [80], [83], [84], [85], [86], [88], [95], [100], [105]
	Number of authors	[85], [88]
	Publication type	[66], [69], [73], [96]
	Journal size	[69]
	H-index	[51], [59], [74], [75], [76], [82], [95], [97], [99]
	Number of citations per article	[10], [59], [60], [62], [69], [70], [71], [72], [73], [74], [75], [79], [80], [81], [82], [84], [86], [88], [89], [90], [92], [95], [96], [97], [98], [102], [103], [104]
	The number of times a review is cited	[59], [70], [72], [73], [79], [80], [81], [84], [97], [104]

RQ3: What are the indicators of research impact towards health and economic?

In order to answer RQ3, the findings regarding the theme of health and economic impact is presented in Table 6. There are 3 sub-themes, namely actual health gain [68] [77] [78] [92] [104], academic promotion, receiving [51] [63] [92] [103] and external funding, and graduate medical education [51] [66] [68] [103]. Thus, this theme could contribute to the increasing impact of research investment from various aspects. [110] said that from the government overview, the definition is much broader as that adopted by the Australian RQF and the UK Research Excellence Framework (REF). According to [40], impact is an effect on change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia. The capacity and capability to develop novel ideas and translate them into new products and processes for economic growth form the knowledge base of an economy [111]. As knowledge becomes publicly accessible either in the form of spill-overs or diffusion, it is widely regarded as a desirable outcome for the greater good of the society, spurring greater innovation and economic growth [112].

Table 6: Identified Themes and Sub-themes of Research Impact towards Health and Economic

Themes	Sub-Themes	References
Health and economic impacts	Actual health gain	[68], [77], [78], [92], [104]
	Academic promotion	[51], [63], [92], [103]
	External funding of graduate medical education	[51], [66], [68], [103]

RQ4: What are the indicators of research impact towards industry and community?

The results to answer RQ4 is presented in Table 7. The theme is the research advancement impact, where eight sub-themes were listed: stimulating debate in the research community [10] [59] [77] [91] [102], methodological developments [10] [59] [67] [68] [78] [92] [104], others methods of dissemination press coverage and the number of mentions in media [10] [59] [104], identification of gaps in knowledge [10] [83] [92] [103] [104], dissemination of knowledge produced [10] [65] [66] [67] [68] [77] [92] [93] [101] [103], research training and career advancement [59] [68] [77] [78] [103] [104] and capacity building and critical mass to undertake effective research [10] [60] [67] [68] [77] [91] [92] [93] [104]. This research advancement is crucial to determine the various issues raised by various parties, including the community and social media. Hence, this study aims to find solutions to overcome these problems. [32] mentioned that the allocation of research funding can benefit greatly effects on society and not just to academic purpose. Otherwise, these analyses can help advocacy initiatives and demonstrate accountability to taxpayers and donors. Besides helping the community, this research advancement impact is essential to support the country's economic growth [107]. Thus, the advancement of research impact helps the government formulate policies according to the prevailing circumstances.

Table 7: Identified Themes and Sub-themes of Research Impact towards Community and Industry

Themes	Sub-Themes	References
Research advancement impact	Debate stimulation in the research community	[10], [59], [77], [91], [102]
	Methodological developments	[10], [59], [67], [68], [78], [92], [104]
	Other methods of press coverage dissemination	[10], [59], [104]
	Number of mentions in media	[10], [59], [104]
	Identification of knowledge gaps	[10], [83], [92], [103], [104]
	Dissemination of knowledge produced	[10], [65], [66], [67], [68], [77], [92], [93], [101], [103]
	Research training and career advancement	[59], [68], [77], [78], [103], [104]
	Capacity building and critical mass to undertake effective research	[10], [60], [67], [68], [77], [91], [92], [93], [104]

RQ5: What are the indicators of research impact towards policy?

To answer RQ5, another theme is the policy implication theme, i.e., the effect of the policy drawn up by the government to help resolve problems that occur. The results are shown in Table 8. There were three sub-themes identified, namely translation of research into clinical [10] [65] [66] [68] [77] [78] [85] [98] [103] [104], practice and evidence in changes to health [67] [77] [78] [104] and service policy and decision-making [59] [65] [67] [68] [77] [78] [91] [92] [93] [98] [101] [104]. This theme is important and is one of the drivers to stabilise and progress a country's stability. [40] stated that that impact is achieved through policy-makers adjusting their beliefs in response to clearly explained research findings. The implication is that research findings are created independently of policy or politics and research is treated as an exogenous variable that feeds into policy-making. In consequence, every research conducted must consider all the sub-themes in this policy implication theme.

Table 8: Identified Themes and Sub-themes of Research Impact towards Policy

Themes	Sub-Themes	References
Policy implications	The translation of research into clinical practice	[10], [65], [66], [68], [77], [78], [85], [98], [103], [104]
	Practice and evidence in changes to health	[67], [77], [78], [104]
	Service policy and decision-	[59], [65], [67], [68],

	making	[77], [78], [91], [92], [93], [98], [101], [104]

5. LIMITATIONS OF THE STUDY

There are few limitations of the study. The researchers use limited keywords in search terms to gather data. The results might be biased due to keywords used during papers abstract filtration. Next, the researchers selected only two sources of data collection which are Scopus and WoS. There might be some relevant or related articles have been missed to be included in the study. Lastly, the results and analysis of the study based on 48 papers related to the research impact that do not take into account the research output and outcome.

6. CONCLUSION

In conclusion, research is a crucial field in a public and private educational institution. Research significantly impacts and increases the country's productivity, thus raising the country's reputation globally. The present study has systematically reviewed previous studies related to research impact. By adopting this approach, there is might be some of these studies can be defied, which is allowing for the identification of gaps and giving opportunities for future study. This study employed a SLR approach and 48 articles were appraised for their quality. Based on the systematic reviews performed of 48 articles resulting in four themes, namely, (1) scholarly production impact, (2) research advancement impact, (3) policy implications, and (4) health and economic impact. These themes were categorized into 24 sub-themes. The review found that the research is important to help various parties get benefits listed in the theme research advancement impact. For policymakers, investment in research helps the government formulate a policy in accordance with the current situation and help the various parties, including the communities to solve problems.

A research that is conducted excellently produces the best results and in turn, boosts the economic growth. Another critical fact, investment in research helps create job opportunities for the community through the research results obtained. On behalf of the university, the performed research helps the university contribute expertise in multiple research fields. In sum, research also helps increase innovation in various areas of study.

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