

## Research Quality and Publication Quality: An Important Parameter

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**Abstract:** Publication is a function that depends on the finding of the research. A research finding depends on the strength of the research. The strength of the research is composed of two main features are the research infrastructure and research grants. This means that a researcher must conduct research supported by the funds (grants) to produce research results. Research results obtained were the main contributors to the publication. However to maximize production, it requires an excellent strategy as the culture that have been practiced in the research, motivated activities organized and the catalyst techniques used. These are the main contributors to the number of publications per year. This study will describe in detail each of the strategies used to achieve this goal.

**Key words:** Research quality, research quantity, strategy, publication, research grants, infrastructure, Malaysia

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### INTRODUCTION

Journal is a word that is less preferred which would normally put pressure on those who produce it. It is also the leading cause of depression and a major contributor to a number of dangerous diseases such as hypertension, heart disease and diabetes. And now aggressively, it has been experienced upon all university lecturer in Malaysia, particularly the universities known as RU (Ab-Rahman *et al.*, 2011a). The production of new products and services can create a tense atmosphere if the individual is not ready. Therefore, there is no other way but we must face and deal with it wisely. Academic journals or scholarly journal is the periodic assessment of the publication of many academic disciplines where it serves as a forum for the introduction and presentation of research, new research or comments regarding the existing research.

Through the National Higher Education Strategic Plan (PSPTN) which was announced on 31 March, 2006 has been targeted in year, 2020 at least three public universities listed among the 100 best universities and at least one university is among the 50 best universities. Accordingly on October 11, 2006, the cabinet at that time had announced four public universities instated as a

Research University (RU). Universities have a mission as the country's growth engine of opportunity for scholars and students to exchange ideas and conduct research in a conducive environment, spur exploration and creativity to explore the knowledge and wealth and so on to change the quality of life. There are criteria used to evaluate the performance of RU are as quantity and quality research, quantity and quality of researcher, quantity and quality of student, innovation, support facilities, networks and links and professional services and rewards.

The biggest contributor is the quantity and quality of research which refers to the number of terms, the number of articles published in leading journals, external research grants obtained and many others. One method to maintain the status of RU are all academicians conduct research and publish academic journals (Ab-Rahman *et al.*, 2011c, e). Academic paper published in book form is also considered. However, not all research can produce a large number of journals.

Usually, it will put pressure on researchers if it is not handled well. Therefore, the need of an effective technique is necessary to maximize the research finding. This study also suggests the strategies that can be used to increase the number of research and thus maximize the results. Among the techniques listed are Multi

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Dimensional Assessment (MDA) (Ab-Rahman *et al.*, 2011b; Ab-Rahman, 2011). Multi-dimensional assessment defines as one that gathers information about a broad spectrum of abilities and skills (North American Division Office of Education, 2011). Through this technique, each of the research presented in a different dimension and every angle is to be manipulated to produce its own output. Effective supervision is also able to bring research to a higher level (Ab-Rahman *et al.*, 2011d). Supervisors are able to form research can also identify components that need to be instilled in students under his supervision (Ab-Rahman *et al.*, 2011f, g).

### RESEARCH QUALITY

Research quality expressed in the assessment of terms in order to observe the impact of a publication or research produced. If higher the terms/quotations for an institution of higher education (IPT) mentioned, the research in that institution will affects the other research. Research quality was specified in two forms, namely H-index and Impact factor. H-index is a measurement of researchers' terms in their articles was quoted in other publications. If a researcher has the H-index is equal to 10. This means he has 10 papers mentioned at least 10 times.

H-index can also be calculated to determine the productivity or the impact of the research group from the same department, university and country. It was introduced by the physical scientist Jorge E-Hirsh in year, 2005 in addition to the impact factor. The impact factor is the assessment of term for a publication and research. The impact factor is a measure of the frequency of the article which was mentioned in a journal in a particular period or a particular year.

It is calculated based on the number of articles published during the previous 2 years which mentioned in the journals indexed in recent years divided by the number of journals published in the previous 2 years. If a journal impact factor equal to 3, this means that every article published in the 2 previous years had been mentioned at least 3 times in recent years. Referring to the history and meaning of the Journal Impact factor, published in year 2006, Impact factor were introduced by Eugene Garfiel in year, 1955 (Garfield, 2006).

Impact factors value have a big impact on the H-index. This is because almost 100% of the journal listed in Q1 and Q2 has the focused scope and all journals in this group have high values of impact factors. Therefore, researchers are encouraged to publish in journals that the scope of its field is focused if you want to increase the value of the H-index. The higher the value of impact factor, the higher the probability of the study is referred and quoted. Next, the value of the H-index can be improved. Evaluation of research groups and individuals



Fig. 1: Components that contributed to the increase in H-index

to be rewarded like the reward and promotion system is based on the H-index so, it is necessary for researchers to monitor their H-index values (Fig. 1). There are two steps to increase the value of the H-index, the first step is to publish in large quantities to increase the probability of the journal mentioned in any other journal. To increase the quantity of per-annual research may refer to this journal to learn effective techniques. A publication in large quantities is necessary because at the time the researcher will refer to and mention the articles they have published. The self-citation is also considered increasing the value of H-index.

The second step is to conduct research at the time from the latest and past. This is because the articles have a high probability to be referred to by the later researchers. Typically, these research findings will be published in journals listed in the Q1. There are a few tips that can be used to publish in the Journal of Q1 and Q2. In conclusion, this index is used as a self-assessment and goals and the Impact factor is the target to be achieved.

### GOALS

**H-index:** An individual term assessment, networking, self-citation, quantity of publication, open access journal, frontier research, quality of publications (Q1 and Q2), publisher and promotion.

### TARGETS

**Impact factor:** The publication term assessment, frontier research, comparative analysis, novelty, innovativeness,

Table 1: Description of each component contributing to the increase in H-index value and components that influence the acceptance of a manuscript will be published in quality journals

Goals	H-index-an individual term assessment
Networking	Research can be expanded where collaboration partners in the same area will also referred and mentioned the publication in their publications
Self citation	Articles produced are encouraged to mention the articles that have been published as well as mentioning the publication of other partners
Quantity publications	The quantity of publications and self citations that stimulates an increase in total of terms
Open access journal	Publishing in this kind of journals will increasing the accessibility of the articles by other researchers to be referred
Frontier research	Frontier research which attracted attention by other researchers to be referred
Quality publications (Q1 and Q2)	Many publishers encourage the articles contributed by referring to the journals that have been published
Publisher	More publishers, more opportunities for an article published
Promotion	The publication promoted in website (titles and abstracts only) will encourage the article referred to
Targets	Impact factor (The publication term assessment)
Frontier research	Important in influencing other research and will be referred to frequently
Comparative analysis	Showing researchers aware of the progress of the problem and its solution. Must be a recent comparison
Novelty	Must be unique and latest because it will affect other future research
Innovative and creativity	Among the most valued components in an article for an evaluation
Clear and systematically written	Good use of language
Latest reference	References must be current and preferably 3 years back to show the research is updated and takes into account the latest achievements in the research world
Established researcher	Parameters difficult to achieve but have a big impact on acceptance of manuscripts for publication. However, it can be achieved by collaborating with leading researchers in any field

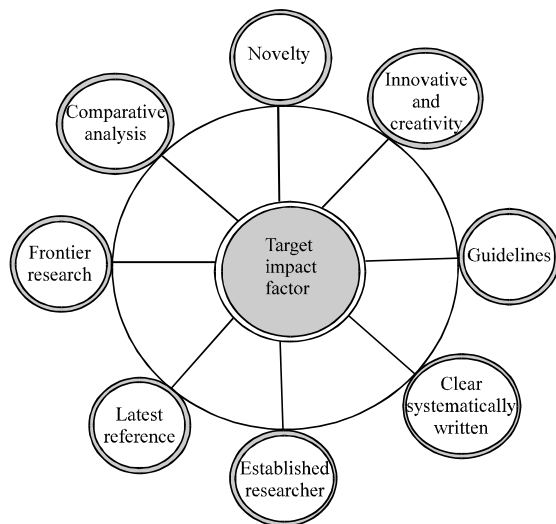


Fig. 2: Components that contribute to the acceptance of a manuscript for publication in a high quality journal

creativity, clear and systematically written, latest references and established researcher. In the selection of journals, priority is given to high-impact journals, indexed and the last option is the journal is not indexed (Zain *et al.*, 2011).

In the THES ratings, only the number of journals indexed in Scopus and ISI is measured. Recognition of a journal to be indexed in the publisher must be assured of quality in management and production, the evaluation process, terms, quality articles and many others. Journal impact is determined based on the frequency of references in other publications. The greater the value of impact factors, the more often referred to the article and it will

affecting the other research. Journals not indexed, refers to any journal that have not been evaluated in the THES ratings than the list in the Scopus and ISI.

In Malaysia, there are now 10 journals were indexed in the ISI and 35 of the journals indexed in Scopus. However, this is quite small compared to the number of journals Indexed in Singapore, 51 (ISI) and 87 (Scopus). Number of journals indexed in Scopus and ISI in the country is also important because it has a great impact on a number of articles in the database of Scopus and ISI (Table 1 and Fig. 2).

## BENEFIT OF RESEARCH PUBLICATION

Some researchers think that the passion for publishing the journal is related to the pursuit of promotion. Or in other words, the number of publications and quality is one of the criteria used in evaluation for promotion. Yes, I agree but we cannot be restricted our mind because journal publication is not contributing to a benefit but >10 other benefits. Figure 3 shows the advantages derived from the publication of which is the contribution of individual and networking (Ab-Rahman *et al.*, 2011a).

**Research publicity:** There are several methods used to publicize research results between internal and international exhibitions, promoting the website and most importantly, the technical report published as journal and proceedings. Through publication of journals, research information and performance can be shared by other researchers around the world. At the same time makes a researcher known based on their research and achievements.

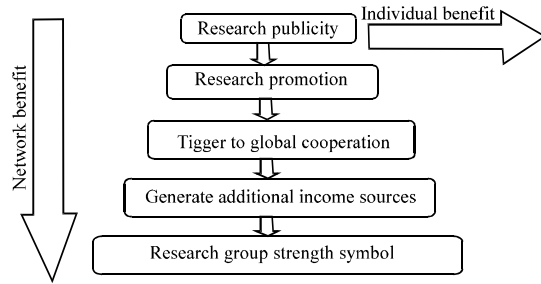


Fig. 3: Diversification benefits derived from the publication of journals either individually or network

**Research promotion:** Applied research based on producing a prototype to promote and then market it through publication. It has become a trend in today's manufacturers started looking for new products that are still raw, ready to work with researchers to commercialize it. The main source for information is through journals and the latest technical papers. Normally, research results as the prototype found in these sources is still new and still not sold.

**The strength symbol of a research group:** The strength of a research group depends on the infrastructure, the number of students and research, especially the number of publications and terms. The number of publications and terms will make the researcher will be remembered and their research laboratory is considered as an excellent laboratory. My research laboratory in UKM was originally a place to store the old CRT computer before disposal. Because there is too much need to do a research, I take the responsibility and turn the lab into the spectrum of technology research laboratory in <1 year. Today, this laboratory is one of the assets of the university which has a master and doctorate students >26 people in the Department of Electrical, Electronic and Systems Engineering, Faculty of Engineering and the Built Environment.

With an average of 25 journal publications per year were attributed to the Department's KPI and the superiority achieved in year, 2009 by 47 journals have been produced. This laboratory can be considered as a new asset of the university was originally an old computer store.

**Increasing University's KPI:** There are eight criteria for the recognition of a RU decided by the Evaluator of Research University Committee where these criteria have been developed with a focus on aspects of R and D and C. One of the evaluation criteria in Research University

(RU) and contributes the highest score is the quality and quantity of research. The quantity of research refers to research strength in terms of the number of researchers, financial assistance in the form of grants and the output of research including some publications that consider papers published in journals indexed in Scopus and ISI only.

**Trigger to global cooperation:** Through the production and research that can be shared by researchers around the world. Cooperation that exists in this relationship will trigger a global collaboration in research. Global cooperation is necessary for all researchers to further their research through the application of international grants, the departure of sabbatical and cooperation in carrying out a research such as the equipment use, exchange of views and other benefits yet.

**Generate extra income resources:** The publication reward scheme is bonus money given by the university to the issue of the journal by the lecturer in certain conditions. Normally, these conditions are the journal that is published must be indexed in Scopus or ISI webmaster. However, the amount of the reward also varies with the quality of journals published or based on the value of journal impact factors. However, the amount of which varies with the quality of journals published or based on the value of journal impact factors. For example, UKM's publication rewards based on the quality of journal publications that has been published and its value increases with the class journal. The value begins with RM 1,000 for journals indexed in Scopus and up to almost RM 6,000 for level 1 quality journals. For publication in 2009, the reward I got was >RM 30,000 and this value is not taxable. It is given to the first researcher in the researcher's list of the journals.

## EFFECTIVE PUBLISHING STRATEGY

The main purpose of writing and publishing is to publicize research findings and share knowledge gained with other researchers in their respective fields of research.

Although, obtaining large research grants not all researchers are able to publish writings in impact journals and also managed to produce writing in the book. Researchers might not be given exposure and the user to write in journals and books. It is possible that researchers take for granted with just released their research finding in a low quality post-conference. Writing skills in English are also seen as factors that cause researchers can not write well because most of the quality journal should be

provided in English. This study describes some initiatives that can be done to produce effective publications including the method can be used to solve the above problems. There are three method groups could be used to maximize the journal publication. Beginning with the formation of the system, the supervisor began to build the strength in the laboratory.

Catalytic activity will be to sharpen and increase the results can be achieved. Effective technique refers to the innovations used to improve the quality of research findings.

### SYSTEM FORMATION

- The workforce that is committed
  - Formation of culture
  - Motivation (Supervisor as anchor; consolation, credit card payment)
  - Effective monitoring
  - Self discipline
- Supervisor relationship with young lecturer (Co-researcher)
  - Research collaboration
  - Manuscript editor
- Supervisor relationship with lecturers senior (Co-researcher)
  - Research collaboration
  - Guidelines
- Facilities
  - Technical equipment
  - Equipment
  - Research grant (consumable material and attending conferences)

### EFFECTIVE TECHNIQUES

- Multi Dimensional Assessment (MDA)
  - Research stage
  - Finding stage
  - Entry component of K+ (creativity)
- Express writing
- Collaborative research
  - Double the strength of research
- Integrated multi-research
- Database development
- Effective desperate strategy

### CATALYST ACTIVITIES

- Workshop of publications catalyst (organize)
- Workshop of manuscripts review (organize)
- Workshop of journal writing (joined)

### CONCLUSION

The quality of research refers to the measured passages or terms (citations). The evaluation purpose on the passage of the issue is to see the impact of a publication or research produced. The higher the passage of an institution of higher education, the research in that institution will influence other research. There are two parameters used in determining the quality of research as Impact factor and H-index.

Impact factor introduced by Eugene Garfield in 1955 and is a measure of the frequency of an article in a journal has been referred to in certain specific period or year. It is calculated by the term ratio of the number of articles published.

H-index is the value added to the impact factor which it refers to the measurement frequency of a research article that was mentioned on a cumulative basis. H-index was introduced by Jorge E-Hirsh a scientist of Physics in 2005.

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