

Factors Affect Scholarly Publication Productivity Among Academic Staff at Taibah University

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Abstract : Research and development (R&D) are central to national and civilizational advances. Excelling in R&D requires research productivity which refers to the research outcomes such as publications, innovation, networking and linkages. Higher education in Saudi Arabia is working towards being on par with international universities. In this regard, the importance of publication for higher education institutions cannot be overlooked. Publications help create new knowledge and increase the reputation of academic staff and institutions. This study seeks to identify the factors influencing the research productivity of academic staff at Taibah University. Interviews with 22 academic staff at Taibah University in Saudi Arabia as preliminary study and review number of paper which related with using information and communication technologies to enhance performance. This study shows that knowledge sharing, using information and communication technology, funds, age, gender, policy, promotion, industry-university relation, e-journal and awareness of using ICT for academic research influenced the production of publications. All the factors are categorised under the three main factors of personality, behaviour and environment.

Keywords : Publication; Productivity; University; Academic staff.

1. INTRODUCTION

Universities are critical to the improvement of a nation. The three primary drivers of development are economics, policies and science. Sciences are developed via universities and can highly influence the economy and policies of a country. Higher education in Saudi Arabia consists of 26 universities. All are controlled by the Saudi government. Taibah University is one such university. A primary objective of universities is to support R&D to contribute to the progression of the country. This has led to increased demand for research productivity. Publications and citations are the most important indicators to measure the performance of research productivity. Saudi universities suffer from low research productivity.

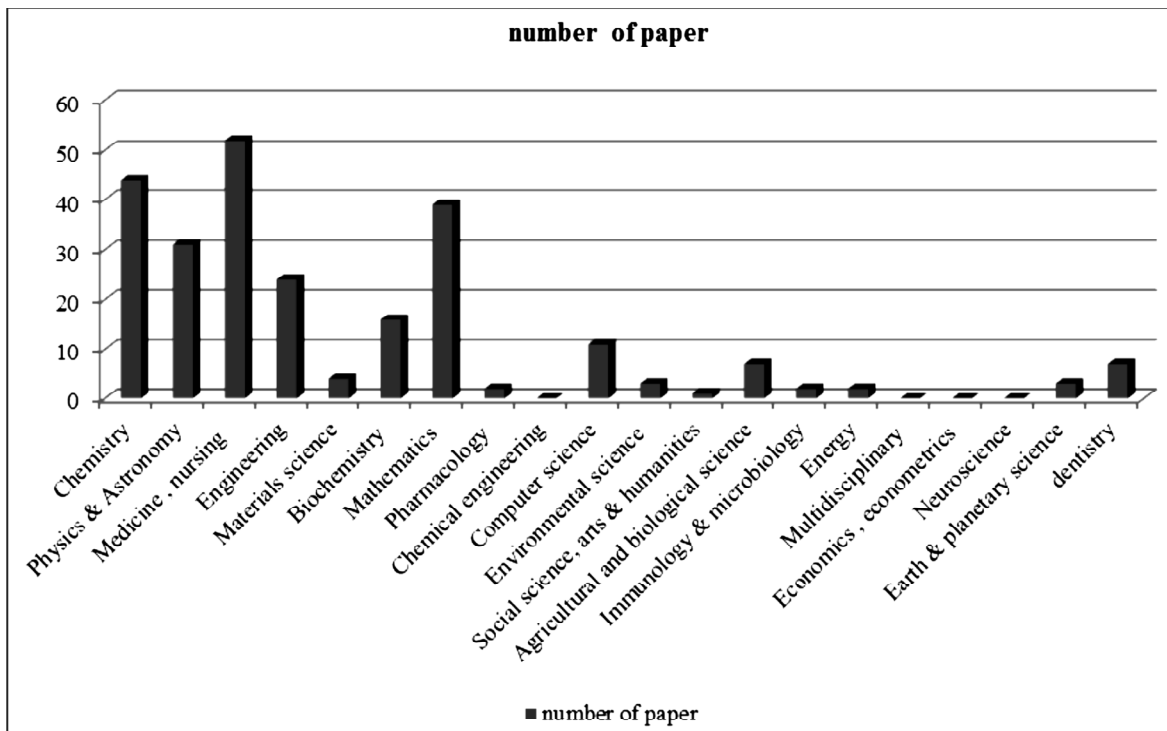
Publications can improve the ranking of universities (Alali & Nikolaidia, 2013) and a key indicator to identify the leading universities around the world (S. Al-Khalifa, 2014). Publication and citation counts are used to help the scientific production of countries (Noruzi & Abdekhoda, 2014). All universities use both indicators (publication and citation) as measures of performance. Saudi universities are working towards reaching the level of international universities (H. Education, 2013). Table 1 shows the low rankings Saudi universities according to QS ranking (QS university RANKING, 2015).

According to (web of knowledge, 2015), Figure 1 shows the lowest number of publication in Taibah University.

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Table 1. QS Ranking (2012-2015) (QS university RANKING, 2015).

No.	University Name	2012	2013	2014	2015
1	King Fahd University of Petroleum & Minerals	208	216	225	199
2	King Saud University	197	253	249	237
3	King Abdul-Aziz university	334	360	334	303
4	Al-Imam Mohamed Ibn Saud Islamic University	401	491	501	551-600
5	King Khalid University	501	601	601	551-600
6	Umm al-Qura University	501	551	551	551-600
7	King Faisal University	551	701	701	651-700

**Fig. 1. Lowest Number of Publication in Taibah University(web of knowledge, 2015).**

According to (Alghanim & Alhamali, 2011), it is necessary to find factors affecting academic staff to increase their research productivity. Investigating such factors can influence academic staff to enhance their research as a step to enhance their performance(Dhillon, Ibrahim, & Selamat, 2015).

2. TAIBAH UNIVERSITY

Taibah University is located in Al-Madinah in the West of the Kingdom of Saudi Arabia. It has seven branches in the state of Al-Madinah and includes 30 colleges. It was established in 2003 as a branch of King Abdul Aziz University. Taibah University offers diploma-bachelor-master-PhD programs. It has 43 PhD students, 1517 master students, 48409 bachelor students, and 7021 diploma students. It has 3980 academic staff. Its principal objective is achieving an international level of education, teaching and publication. It is fully supported by the Saudi government (University, 2012). Table 2 lists the budget awarded to Taibah University for scientific research to fund the projects of academic staff(Ynibawi, 2015).

Table 2. Budget Provide to Academic Staff at Taibah University (Ynibawi, 2015).

<i>No.</i>	<i>Year</i>	<i>Budget</i>
1	2011	10.004.075 S.R
2	2012	11.183.883 S.R
3	2013	15.000.000 S.R
4	2014	11.000.000 S.R
5	2015	11.915.386 S.R

According to interview with manager of deanship of scientific research at Taibah University and dean of deanship of scientific research at North Border University they agree the main reasons of unclose or late close the project is condition of publication in ISI Journal. Also, there are agreeing that this issue affect the number of publication in ISI or Scopus for the university.

Achieving a level of an international university requires meeting a certain number of publications as an indicator of performance (Sidorenko & Gorbatova, 2015). University ranking is a top priority for (Pouris & Pouris, 2010). The QS ranking does not even list Taibah University (QS university RANKING, 2015). The Times Higher Education is another famous ranking system, and Taibah University is also not included in its list (T. higher Education, 2015). According to (Webometrics, 2015), among all universities around the world, Taibah University is ranked 2397 out of 11.000 universities. The main indicators used to measure performance are publication and citation. Table 3 shows the low the number of publications in Taibah University.

Table 3. Number of Publication in Saudi Universities (web of knowledge, 2015).

<i>No.</i>	<i>University Name</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
1	King Fahd University of Petroleum & Minerals	638	665	802	741	647
2	King Saud University	5073	5930	5888	6773	5213
3	King Abdul-Aziz university	977	1838	5294	7919	5674
4	Taibah university	109	148	233	325	273
5	Hail university	43	63	69	94	70

According to (University, 2015), Saudi universities allow their academic staff to attend conferences. Saudi universities cover all the cost of participating in the conference including hotel, transport and allowance. Table 4 shows the huge gap between academic staff attending conferences to present papers and other.

Table 4. Number of Attending Conference in Taibah University (University, 2015).

<i>Faculty</i>	<i>In Saudi Arabia</i>		<i>Out of Saudi Arabia</i>	
	<i>With paper</i>	<i>Without paper</i>	<i>With paper</i>	<i>Without paper</i>
Faculty of Medicine	62	157	12	42
Faculty of dentist	14	41	4	17
Faculty of applied medical sciences	4	39	6	28
Faculty of computing	0	8	0	3
Faculty of engineering	0	2	0	4

The above emphasizes the importance of investigating the factors affecting academic staff at Saudi universities to enhance research productivity. According to (S. Al-Khalifa, 2014), the performance of academic staff is becoming the most important aim for Saudi universities to reach the level of international universities.

3. PUBLICATION AND CITATION

Measuring the performance of organisations via the number of publications and citations is essential to know the leading universities (S. Al-Khalifa, 2014). According to (Noruzi & Abdekhoda, 2014), counting the number of publications and citations is necessary to measure the performance of academic staff in universities. Publications and citations in high-impact factor journals add significant value to universities and countries (Alali & Nikolaidia, 2013). Moreover, publications in high-impact journals is a strong indicator of academic success. Also, internal and external evaluations of universities measure the number of publications and citations (Altbach, 2015). According to (Martínez, Herrera, López-Gijón, & Herrera-Viedma, 2014), the citation is considered the "gold bullion of science". Publications and citations are important indicators to support making decisions (Alonso, Cabrerizo, Herrera-Viedma, & Herrera, 2009). Measuring the performance of research productivity helps in national development (Pouris & Pouris, 2010). Academic reputation is essential for academic staff and their organization. Publication and citation control academic reputation (Gendron, 2013). According to (Wilkinson & Durden, 2015), the number of publications is the most common indicator used by organizations to evaluate faculties and departments. Also, many international universities use research productivity as an important element for promotion (Hanafi, 2011). Promotion decisions in most international universities are derived from a tripartite model by which academic staff are evaluated according to three indicators (teaching-publication-service in universities or organization) (Dhillon, Ibrahim, Selamat, & Sani, 2013). According to the interviews with 22 academic staff, all agreed that research productivity is a significant indicator to evaluate academic staff. According to interview with a manager of the promotion department at Taibah University, there is a clear delay in upgrading academic staff in Taibah University. The main reason for this delay is the quality of journals. The promotion department has three indicators to measure the performance of academic staff as listed in Table 5. Most academic staff try to find journals that are easy and quick to publish. They focus on domestic journals in Arabic.

Table 5. Weight of Each Indicator.

Indicators	Weight (%)
Teaching	25
Publication	60
Community service	15

4. FACTORS

Different factors influence the research productivity of academic staff. Some factors pertain to the organization such as policy and motivation. Other factors come from the personality of academic staff such as gender, age, and IT proficiency. Also, there are behavior factors which can influence the performance of research productivity for academic staff (Dhillon et al., 2015). According to interviews with the academic staff at Taibah University, Table 6 shows that different factors affect academic staff at Saudi universities.

Table 6. Factors from Different Perspectives

<i>Question</i>	<i>Answer</i>	
Do you have research our in your university timetable.	Having research hour	Do not have research hour
	2	22
Do you have any research grant from other sector	Yes, I have grant before	No, I do not have any grant
	0	22
Are use library system before or visit university library	yes, I use and visit	no, I do not use
	7	15
Are you sharing your knowledge with other collogue or sector	yes, I was sharing	no, I do not
	5	17

<i>Question</i>	<i>Answer</i>	
Did you join teamwork before to do some task	yes, I did before	no, I do not
	6	16
Evaluating research productivity	Poor	Medium
	12	10
University provide access to international database	yes, they provide	no, they do not
	3	19
Do you publish paper in ISI before or international journal	yes, I do	no, I do not
	7	15
Do you motivate by your university to publish in international journal	yes, they do	no, they do not
	5	17
Do you have and target that you have to reach in the end of each year	yes, I have	no, I have not
	0	22

A. PERSONAL FACTORS

Personal factors are an important influence on performance. According to (Harrison, Rainer Jr, Hochwarter, & Thompson, 1997), the personal factor can influence the performance of self-efficacy. Job satisfaction is considered a top indicator which can influence the research productivity of academic staff. Other personal characteristics which can influence job satisfaction include age, gender, experience, teaching load, and number of children (Basak & Govender, 2015). Knowledge sharing is a scientific means to enhance research productivity and the number of publications and citations. Using information and communication technology to improve the level of sharing positively affects the performance of research productivity for academic staff. For example, using computer applications to conduct research using the social network to communicate (Sohail & Daud, 2009). According to (Al-Shanbari & Meadows, 1995), using email, e-journal, online database, electronic data exchange and Microsoft office have positive impacts on enhancing research productivity for academic staff. Awareness of research databases among academic staff is a primary factor which can influence research productivity (Shahbazi-Moghadam, Salehi, Ale Ebrahim, Mohammadjafari, & Gholizadeh, 2015). Moreover, attending electronic conferences allows academic staff to update their knowledge to explore new areas of research (Siddiqui, 1997). In addition, lack of computer skills can adversely affect the level of research productivity (Zainab, 2000). Awareness of using different types of ICT is an important personally factor to increase the number of publications and citations (Sangowusi, 2003). According to the interviews, the academic staff agrees that using ICT is necessary to update their information. Also, they agree that using computers allows them to contact others easily to enhance research productivity. Academic staffs that use international databases have more publications than others. They agree that using computers to do research saves time and is more productive. Also, using online discussions allow academic staff to contact easily with faculty and universities.

B. BEHAVIOR FACTORS

According to (Godin, Bélanger-Gravel, Eccles, & Grimshaw, 2008), behavior factors are a primary factor related to personal factors to improve the general performance of any indicator. Stress is considered under the behaviour factor and can adversely affect the performance of academic staff (Iqbal & Kokash, 2011). The attitude of knowledge owner is another important factor to enhance research productivity for academic staff (Godin et al., 2008). The attitude of trust is a behaviour factor that can assist academic staff to increase their number of publications

and linkages with others (Godin et al., 2008). Accepting the electronic feedback form organizations can help academic staff to achieve their goals or targeted number of publications (Wu, Zhao, Ho, & Liang, 2015). Moreover, behavior intention of using ICT to share knowledge with others is an important behavioral factor to update knowledge, increase productivity and enhance network linkages (Yassin, Salim, & Sahari, 2013). In addition, accepting the systems provided by the organization to evaluate and measure the productivity of academic staff is an important motivational factor (Sani, Ibrahim, & Selamat, 2011). Academic staff with the intention to engage in electronic collaborative have more publications and citations than others (Gertrude, 2015). According to (Shirazi, 2011), working with teams can influence the performance of research productivity for academic staff positively. According to a preliminary study at Taibah University, the academic staffs agree that behavior factors or attitude of academic staff through knowledge sharing and trust of using ICT assist academic staff to achieve their goals. Most agree that trust of exchange data using tools can save time and enhance productivity. The deanship of scientific research at Taibah University agreed that most academic staff do not have the intention to publish their researchers in journals with high impact factor. They are looking for domestic journals.

C. ENVIRONMENT

Most researchers agree that environment is an important element to enhance the productivity of the organization. The environment can provide culture, policy and structure for the workers (Wood, 1990)(Sohail & Daud, 2009)(Watson-Manheim & Belanger, 2002). Lack of IT infrastructure in the organization affects the performance of academic staff and the level of sharing knowledge between universities (Sohail & Daud, 2009). Providing a library system with access to international databases helps researchers to increase the level of productivity and assists them to find and update their information (Al-Shanbari & Meadows, 1995). Arranging conferences or workshops about the awareness of research databases will push researchers to use them to do research (Shahbazi-Moghadam et al., 2015). According to (Raza & Upadhyay, 2006), the availability of e-journals assists workers in the organization to improve their reading and increases the number of publication. Accessing the library system from outside the library is helping academic staff to have easy use and easy reach to information (Zainab, 2000). Moreover, providing training for academic staff to improve their skills in using computers enhances their level of internet use (Zainab, 2000). Poor communication between universities leads to a reduction in the number of publications in high impact factor journals (Alakloby, 2012). Also, lack of funds to provide electronic facilities will impact the level of communication which will lead to unsatisfied productivity (Sangowusi, 2003). Organizations have applied structures to adopt IT to improve productivity (Melville, Kraemer, & Gurbaxani, 2004). Using information systems to appraise academic staff will help to achieve goals (Sani et al., 2011). A policy of network linkages will motivate academic staff to publish with leading universities (Sani et al., 2011). Adopting systems such as balanced scorecard (BSC) to manage activities in the organization will affect productivity positively (Feng & Na, 2009). Also, using tools such as key performance indicators will help to measure the performance of research productivity (Kung, Yan, Huang, & Lai, 2009). Universiti Teknologi Malaysia (UTM) has progressed in the number of publications and university ranking. It uses Key Performance Indicators (KPI) as a tool to measure the performance of academic staff (UJANG, 2012). Academic staff at Taibah University agrees that many factors needed to be provided by the university. Most agree that the university allows them to share their experience with other sectors for funding. They also stated that the university has to enhance its industry-university relations. They agree that the university should introduce a policy to associate promotion and reward with the number of publications.

D. PRELIMINARY STUDY

Interviews were conducted with 22 academic staff at Taibah University as a preliminary study. Table 7 shows the frequency of selecting factors affecting academic staff to enhance their research productivity.

Table 7. Factors affecting Saudi Academic Staff

<i>Factor</i>	<i>Number of Academic Staff</i>
PhD Student	17
Research grant	12
equipment	13
Industry - university relationship	13
languages	16
Motivation	13
International collaboration	13
Teaching and administration load	15
Knowledge sharing	16
Innovation	3
Select journal	8
Support staff	2
Research centre	4
availability of potential license library	20
policy	15
User satisfaction	15
Training	7
Team work	12
Using IT	21
university policy	16
feedback	14
measure performance	17
use system to evaluate progress	21
use indicators to renew contract	10

5. MATERIAL AND METHODS

The authors used various databases to find evidence of the importance of research productivity to measure academic staff in Saudi universities. International websites were referred to show the ranking of Saudi universities such as QS ranking and Times Higher Education ranking. Also, to determine the most important factors which effect measuring performance of universities, the authors conducted a preliminary study with 22 academic staff at Taibah University. These include Saudi academic staff and international academic staff.

This paper examines the importance of research productivity and publication, effects of research grant and Saudi university ranking to demonstrate the importance of building a model to investigate factors which influence Saudi academic staff to publish in ISI or Scopus journals. Also, to investigate the factors which can influences academic staff in Saudi universities to enhance research productivity by using information and communication technology. This paper divides factors into personal factor, behavior factor and environment factors. All factors are related to the use of ICT to enhance the performance of research productivity in Saudi universities.

6. DISCUSSION AND RESULTS

The above preliminary study and related work highlights the importance of research productivity to improve university ranking, increase the reputation of academic staff, and achieve the objectives of universities. Taibah University suffers from a poor research and publication profile. Many researchers investigate the factors which affect the performance of academic staff in teaching and research. This paper looks for factors enhancing academic staff to use ICT to increase the performance of research productivity. To enhance the research productivity at Taibah University, the university needs to consider how to make the most of the identified factors to assist academic staff in using IT. Enhancing their awareness about using ICT in the academic field will improve their level of electronic collaboration between academic staff and universities to enhance the number of publications. Relationships between university and industry increase the income of universities and help academic staff identify new areas of research. Using ICT will assist academic staff and universities to have more opportunities with this task. It is important to have tools to measure the performance of academic staff at Saudi universities.

Therefore, it is necessary to focus on all the identified factors and develop a model that integrates the personal, behavioral, and organizational factors to enhance using ICT to improve research productivity.

7. CONCLUSION

R&D and research productivity are critical for development. Developed countries encourage academic staff to generate university income by augmenting research activities. Saudi universities are also planning to utilize R&D as a key resource. Specific KPIs need to be designed to ensure research produces the desired outcomes that benefit the country. This can be seen as a strategy to achieve the objective of the international universities in accordance with the requirement of the Saudi Ministry of Higher Education. With the existence of the KPI, it can certainly assist the university to monitor the performance of each academic staff on their workload, particularly their research activities. The KPI is a suitable approach for both profit and non-profit organizations such as UTM. Enhancing the use of ICT can help Saudi universities to achieve their goals. Increasing the level of communication between academic staff from various faculties, universities and industries will increase research productivity. Finally, it is not possible to achieve the goal of Saudi university if academic staff do not try to change their personal characteristics, their behaviors and assist by their universities. So, all of those effects have to influence Saudi academic staff to enhance using information and communication technology in order to improve level of communication. It will lead to increase the knowledge sharing and e-collaborative in order to reach the goal of Saudi universities.

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