The South East Asian Journal of Management

Volume 12
Number 1 *April*

Article 2

4-30-2018

The Effect of Individual and Leadership Characteristics Toward Research Productivity with Institutional Characteristics as a Mediator Variable: Analysis Toward Academic Lecturers in the Faculty of Economics and Faculty of Linguistic and Arts at University

Evi Permata Sari Lase
Graduate School of Management, Faculty of Economics and Business, University of Indonesia,
evi.permata@ui.ac.id

Yanki Hartijasti
Graduate School of Management, Faculty of Economics and Business, University of Indonesia,
yanki.hartijasti@ui.ac.id

THE EFFECT OF INDIVIDUAL AND LEADERSHIP CHARACTERISTICS TOWARD RESEARCH PRODUCTIVITY WITH INSTITUTIONAL CHARACTERISTICS AS A MEDIATOR VARIABLE: ANALYSIS OF ACADEMIC LECTURERS IN THE FACULTY OF ECONOMICS AND FACULTY OF LANGUAGES AND ARTS AT UNIVERSITY OF X

Evi Permata Sari Lase*
Graduate School of Management.
Faculty of Economics and Business.
University of Indonesia
evi.permata@ui.ac.id

Yanki Hartijasti
Graduate School of Management.
Faculty of Economics and Business.
University of Indonesia
yanki.hartijasti@ui.ac.id

Abstract

This research analyses the influence of both individual and leadership characteristics on research productivity. mediated by institutional characteristics. of the lecturers in the Faculty of Economics and the Faculty of Languages and Arts at the University of X in Jakarta. We distributed a questionnaire with closed questions to 100 lecturers who are not department heads and hold master's degrees or higher. We then performed a quantitative analysis of mediation using SPSS software. The results indicate that the effect of individual characteristics on research productivity is partially mediated by institutional characteristics. and that the effect of leadership characteristics on research productivity is fully mediated by institutional characteristics.

Keywords: Individual Characteristics. Leadership Characteristics. Institutional Characteristics. Research Productivity

Abstrak

Penelitian ini menganalisis pengaruh karakteristik individu dan kepemimpinan pada produktivitas penelitian, dimediasi oleh karakteristik kelembagaan, para dosen di Fakultas Ekonomi dan Fakultas Ilmu Budaya di Universitas X di Jakarta. Kami membagikan kuesioner dengan pertanyaan tertutup kepada 100 dosen yang bukan kepala departemen dan memegang gelar magister atau lebih tinggi. Kami kemudian melakukan analisis kuantitatif mediasi menggunakan perangkat lunak SPSS. Hasil penelitian menunjukkan bahwa pengaruh karakteristik individu pada produktivitas penelitian dimediasi sebagian oleh karakteristik kelembagaan, dan bahwa pengaruh karakteristik kepemimpinan pada produktivitas penelitian sepenuhnya dimediasi oleh karakteristik kelembagaan.

Kata Kunci: Karakteristik Individu, Karakteristik Kepemimpinan, Karakteristik Kelembagaan, Produktivitas Penelitian

*Corresponding author

Universities have an important role in the economic growth process, both as sources of new knowledge and as trainers of scientists and engineers working in industrial fields (Hill, 2006). However, the results of a seminar organized by the UNESCO Forum on Higher Education, Research and Knowledge found that higher education institutions or post-secondary education are in a precarious situation, and to keep the university as a centre of research and knowledge creation requires attention and further action (Weiler, Rosenblit, & Sawyerr, 2006).

According to Witzel (1999, in Lertputtarak, 2008), productivity is a total production compared with input or consumption in one-time period which used to know whether the production process is efficiently or not. While Plunket, Allen, and Attner (2011, in Webber, Ser, & Goussak, 2015) defined productivity as a relationship between input and output which must be generated. Then, based on Oxford University (1995, in Lertputtarak, 2008), research is a study which is conducted carefully, or an investigation which aims to find the new fact or information.

Then, Cresswell (1986, in Lertputtarak, 2008) define research productivity includes research publication e.g publishing journal or proceeding, books, dissertation, getting research funds, being an editor, attaining patent or license, etc. it is similar with Wills, Ridley, and Mitev (2013) who revealed that research productivity refers to the amount of research findings which is produced by scholars. Additionally, Hedjazi and Behravan (2011) described research productivity as innovative ideas that have been studied in theory and practice and have been published in a journal, registered as a patent, or otherwise publicly documented. Furthermore, Nguyen and Klopper (2014) revealed that research productivity is the result of academic activities in terms of research that is usually associated with publications, such as books, journal articles, research presented at the conference, and competitive research funding.

There are a number of variables that influence and are associated with research productivity, including academic origin and affiliation (Long et al., 1998; Smith et al., 2008), academic content (Jorge, Michael, & George, 2006), collaboration (Lee & Bozeman, 2005; Chun-Yu, Yen-Chun, and Wen-Hsiung, 2013; Sondari, Tjakraatmadja, & Wake, 2014), individual characteristics (Ramsden, 1994; Bland et. al., 2005; Lertputtarak, 2008; Hedjazi and Behravan 2011; Bay & Clerigo, 2013), institutional characteristics (Teodorescu, 2000; Bland et. al., 2005; Burke, et al., 2007; Chung et al., 2009; Chen, et. al., 2010; Hedjazi & Behravan, 2011; Jung, 2012), leadership characteristics, and demographic factors (Vange, Marler, & Wright, 2005, Bland, et al, 2005; Mamiseishvili & Rosser, 2010; Kaufman & Chevan, 2011; Hedjazi and Behravan, 2011; Jung, 2012).

Data from Scimagojr (2016) shows the top five countries in the world based on the amount of research documents produced. Among these five countries, as shown in Figure 1, the United States and China have significantly higher research outputs compared to the United Kingdom, Germany, and Japan, al-

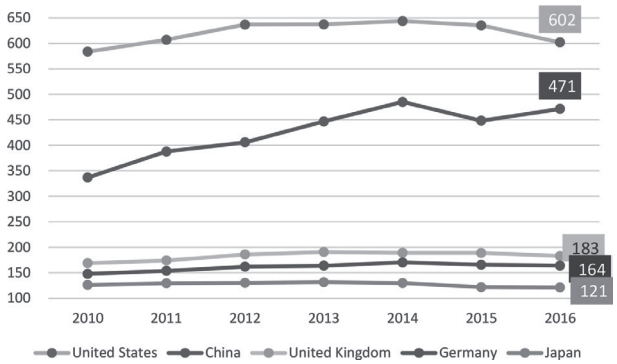

Figure 1. Comparison of Total Research Documents in the Best Five Countries (in Thousand)

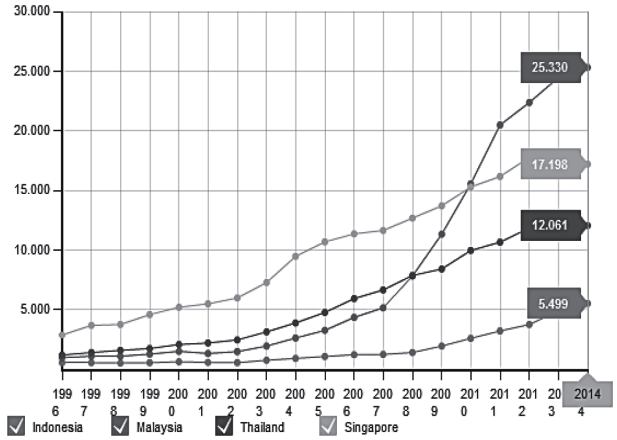

Figure 2. Comparison of Total Research Publication between Indonesia, Malaysia, Singapore, and Thailand

though the trend decreases slightly over time. However, when comparing the results from these developed countries to those of developing countries (Figure 2), it is evident that the total output varies significantly, dropping from the hundreds of thousands (developed countries) to only thousands (developing countries) of research documents produced annually.

Indonesia is ranked 57th out of all countries in the world and 4th in Southeast Asia after Malaysia, Singapore, and Thailand. As can be seen from the trends in Figure 2, the number of research publications in all four countries is likely to continue increasing over time. The difference in total research documents between these four countries is significant; in 2014, Malaysia published 25,330 research documents, while Indonesia published only 5,499. Even Thailand, the second-lowest research documents among the four, published more than twice as much as Indonesia in 2014 although they have a significantly smaller population. This shows that the productivity of research in Indonesia is still low.

Based on the University Assessment Classification of Research, conducted by Indonesia Direction General of Higher Education (2015), we choose the University of X, which has a low classification score in research and publication quality—only 1.1 on a

Table 1. Percentage of Lecturers' Research Publication in the Faculty of Economics and Faculty of Languages and Arts at the University X

Type of Publication	Year 2013				2014				2015			
	FE*)	%	FLA**)	%	FE	%	FLA	%	FE	%	FLA	%
National Seminar	-	-	21	16.94	-	-	53	41.41	-	-	15	11.54
International Seminar	33	46.48	23	18.55	9	11.84	57	44.53	9	11.11	14	10.77
National Journal	-	-	4	3.230	-	-	9	7.03	-	-	7	5.38
International Journal	7	9.860	2	1.610	4	5.26	3	2.34	5	6.17	3	2.31
Internal (Faculty)	30	42.25	3	2.420	8	10.53	0	0	23	28.4	3	2.31
Total Number of Lecturers	71		124		76		128		81		130	

*FE : Faculty of Economics
**FLA : Faculty of Languages and Arts

scale of 4. We purposely selected an underperforming university in order to identify what problems researchers faced and which of our study's research parameters have the greatest impact on faculty research activities, so that our results can lead to appropriate recommendations for increasing research productivity .

In addition, we interviewed a Secretary of Research Institution at University of X to obtain the description of research publication for each faculty member. From these interviews, we learned that faculty research output generally i ncreased from year to year. In addition, several faculties like Faculty of Math and Science and Faculty of Engineering had higher amount of research publications compared to other faculties like Faculty of Economics, Faculty of Social Science and Faculty of Languages and Arts. Based on these results, we selected two of the seven faculties at the University of X: Faculty of Economics and Faculty of Languages and Arts. We chose these faculties because they both had low research productivity compared to other faculties at the University of X like like Faculty of Math and Science and Faculty of Engineering.

Furthermore, we obtained data from both faculties on their publications in scientific seminars and journals during the period from 2013 to 2015 (Table 1). It was noted that lecturers in the Faculty of Economics publish ed their research more often in international than national seminars, but that this was reversed when it came to journals: the majority of lecturers published their research in internal faculty (local) publications than in national or international journals. We made a ratio between the amount of research publication and total of lecturers. In addition, research productivity in the Faculty of Economics was quite low because it did not reach 50%. The publication percentage was even lower in the Faculty of Languages and Arts. They tend to published in the international than the national seminars but tend to published journal nationally rather than internationally. Overall, the publication percentage of Faculty of Economics was greater than the Faculty of Languages and Arts.

The Importance of Research

Universities play big roles in knowledge contributions through their research and new inventions. Research results have big impacts in improving

ways of living and influencing governments or practitioners in making policies in their countries or regions and companies. For example, university researchers might contribute to a discovery of an advanced technology in the healthcare industry, or to insights about managing employees from different generations, or to research on achieving organizational excellence; the possibilities are endless. In addition, universities can also support the teaching activities of academics and scholars by bringing the latest research developments to classes.

In the process of measuring the world university ranking, universities' research productivity has a big contribution as we can see from its weight as following. For instance, in the Academic Ranking of World Universities and the Times Higher Education ranking system, research was measured about 40% and 30–37.5% to the total score which leads to the ranking of the university. Similarly, the QS World University Ranking system measures and heavily weights two types of research factors: academic reputation (assessed using experts' opinion of teaching and research quality), which accounts for 40% of a university's score; and citations per faculty, which accounts for 20% of a university's score. Based on these ranking systems, we know that research is crucial for improving a university's ranking and reputation.

As previously mentioned, the University of X receives low scores in research. Our study therefore seeks to investigate which variables (individual characteristics and leadership characteristics) significantly influence research productivity in both our selected faculties. These are the research questions we sought to address:

1. Do institutional characteristics mediate the influence of individual characteristics on research productivity in the Faculty of Languages and Arts and the Faculty of Economics at the University of X?
2. Do institutional characteristics mediate the influence of leadership characteristics on research productivity in the Faculty of Languages and Arts and the Faculty of Economics at the University of X?

LITERATURE REVIEW

Research Productivity

Bland et al. (2005) studied the effect of individual and leadership characteristics on research productivity mediated by institutional characteristics. Results suggested that lecturers' research productivity were influenced by individual and institutional characteristics. Then, Hedjazi and Behravan (2011) conducted research which is examined demographic, individual and institutional characteristics on research productivity and supported the findings from Bland et al. which is individual and institutional characteristics influence research productivity. While Politis (2005) revealed that positive work environment significantly influence productivity.

People in an institution will influence how the institutions operate, how the people there interacts, and also teamwork, collaboration, policies, and so many more. For instance, Individuals who have motivation, research skills, and used to publish their research in early career will be easier to conduct research. Furthermore, the existence

of leader will influence the condition in the organization and create a supportive and cooperative work environment and condition in order to reach the organizational missions. Leaders have a role to make a policy, become a role model, e.g. being a good mentor in research, assisting young lecturers to get the grants, giving feedback and motivation in research. After that, it will affect the system in the organization, e.g. positive group climate, recruitment strategy, teaching and research load, communication, reward system which can foster the lecturers to do research.

Besides that, there were limited research about the effect of leadership characteristics on research productivity. While in Indonesia, study on research productivity were really scarce, moreover it is even more scarce to see the connection with leadership characteristics. Considering the previous research and the scarcity about research productivity in Indonesia, we would like to examine individual, leadership, and institutional characteristics in order to find which variable and dimension significantly influence the research productivity. We used the same research model with Bland et al. (20050 and can be seen on Figure 3.

Individual characteristics

Previous researches found a set of variable which influence research productivity. Bland et al. (2005) found that motivation (as a dimension of individual characteristics) significantly influence research productivity. But in contrast, Hedzaji and Behravan (2011) who used almost similar dimensions with Bland et al. (2005) revealed that there was no correlation between motivation and research productivity. Furthermore, Hedjazi and Behravan (2011) found that the dimension of individual characteristics which have the positive effect on research productivity were autonomy and commitment, work habit, and creativity. Then, different with Martinez, Floyd, and Erichsen (2011) highlighted several individual traits which are positively correlated to research productivity: persistence, discipline, work ethic, open-mindedness, and patience.

Leadership characteristics

There is a limited amount of research examining the influence of leadership on research productivity, but what research does exist suggests that leadership can have a positive impact on research performance (Goodall, 2009). Previous researches showed that leadership characteristics can influence research productivity (Kerr, 1977 in Letrtputtarak, 2008; Dundar & Lewis, 1998 in Bland et al., 2005). This finding was supported by Segun-Adeniran (2015) who suggested that leadership has an undeniable influence on research productivity in an organization.

According to Bland et al. (2005), leadership characteristics consist of four aspects: scholarship, research orientation, capability to fulfil all critical leadership roles, and active leadership participation. Kok and McDonald (2017) found that successful leaders in highly productive universities have some specific characteristics namely practical, directed goals clearly, trustworthy, and tended to give empowerment and autonomy to their staff.

Furthermore, Uslu and Welch (2016) conducted a qualitative study to ex-

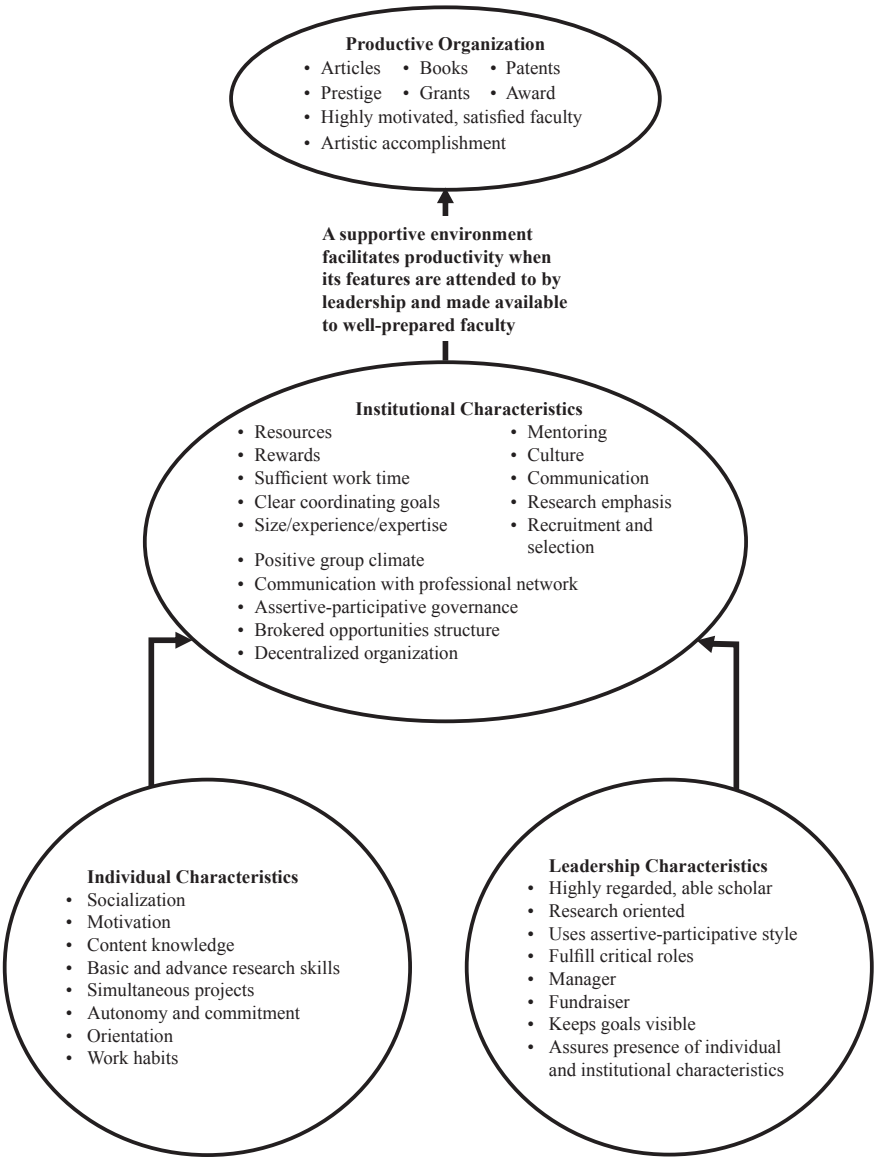

Figure 3. Research Model used by Bland et al. (2005)

amine the intellectual leadership behaviours of senior academics at the Associate Professor and Professor levels. Their results showed that according to senior academics, leadership behaviours give contribution to new knowledge, maintaining high standards of research publication, being a role model of scholarly achievements, continuously raising the reputation or rankings of their institutions, bringing in external funds, helping younger researchers develop, and getting involved in many public events or debates in order to solve social issues.

Institutional characteristics

Institutional characteristics are the hallmark properties of an institution which support or encourage lecturers to do research. Teodorescu (2000) found that there are 10 relevant institutional characteristics, including pressure to do research, weekly teaching hour assignments, weekly hours

assigned to administration, perceived extrinsic rewards, salary, perceived institutional support for research, quality of students, institutional emphasis on research, international orientation of the campus, and regular evaluation of research.

Based on previous researches, there were a set of institutional characteristics which influence research productivity. For instance, recruiting lecturers who have 5 year experiences after getting doctoral degree can maintain and foster research productivity (Chung et al., 2009). It is different with Bland et al. (2005) who found that recruitment strategy did not have an effect to research productivity.

Another factor like seniority or years of experience also can influence research productivity. research conducted by Bland et al. (2005) and Jung (2012) suggested that senior scholars were more productive than the juniors.

Furthermore, a factor which is considered has a big impact on research productivity is doing research without being disturbed by teaching activity. Sufficient work time significantly influence research productivity (Finkelstein, 1984 in Bland et al., 2005; Chen et al., 2010; Hedjazi & Behravan, 2011, Bland et al., 2005; Jung, 2012). Hu and Gill (2009) support this finding and stated that if the teaching load was more than 11 hours per week, it will negatively influence research productivity. Then, clear coordinating goals and the availability of resources which is provide by the institution e.g. library, access to online journal, research assistant also can influence research productivity.

Besides that, communication with professional network related to research and assertive management style influence the tendency to do research (Bland et al., 2005; Hedjazi & Behravan, 2011; Jung, 2012). Furthermore, reward also has a positive effect on research productivity (Bland et al., 2005; Chen et al., 2010). Whereas, Hedjazi and Behravan (2011) found that there was no significant correlation between reward and research productivity.

Then, organizational culture was found to have a positive influence on research prouctivity (Cresswell & Bean, 1996 in Hedjazi & Behravan, 2011; Bland et al., 2005), but have no influence based on Hedjazi and Behravan (2011).

Hallinger and Bryant (2016) analysed two countries in Asia, Hong Kong and Israel, which are considered two positive outliers because they achieve high research productivity compared to other countries in Asia. The researchers found that universities in the two countries used different strategies in human resources deployment and institutional support. However, both Hong Kong and Israel have scholars who are involved in international collaborations, although at different levels and involving only a small number of institutions within each country. Additionally, in Hong Kong, four of the ten scholars who actively published research were expatriates. In Israel, however, all of the scholars were Israeli. Furthermore, research funding was found to influ ence research productivity; 20% of Hong Kong and 16.5% of Israel get grants for their research. In addition, the lecturers' rank and the requirement to publish research in English were

Table 2 Indicators of Research Productivity by Dikti

No.	Research Outputs	Components	Weight
1.	Scholarly Publication	International	7.5
		National accredited	4
		National unaccredited	1
2.	Speakers in Scientific Forum	International	0.6
		National	0.3
		Regional	0.1
	Keynote/Invited Speaker	International	1
		National	0.5
3.	Intellectual Property Rights	Patent	5
		Simple Patent	2
		Protection of Plant Varieties	2
		Copyright	2
		Trade Mark	2
		Trade Secrets	2
		Industrial Product Design	2
		Geographical Indication	2
		Protection of Integrated Circuit Layout Design	2
4.	Other Research Outputs	Appropriate Technology	2
		Model/Prototype	2
		Design/Artworks	2
		Social Engineering	2
		Module/Textbook (with ISBN)	5

also factors that influenced research productivity.

RESEARCH METHOD

Measurement

There are two kinds of measurement which used by previous researchers on research productivity. There were quantity measurement and also combine between quantity and quality. Since this paper counted research output in several kinds and level (e.g. journal, seminar, peer-reviewed, in international and national refereed and non-refereed journal) so we considered not only quantity but also quality based on where the researches were published. The Directorate General of Higher Education classifies journals into three types: internationally accredited, nationally accredited, and unaccredited. It further subdivides international journals into indexed and unindexed categories. Our weighting system in this study was similar enough with Indonesia Directorate General of Higher Education's. However, Indonesia Directorate General of Higher Education also measures the weight of other kinds of research output such as copyrights, patents, and being a keynote speaker, which were not counted as components of research productivity in this paper because neither faculty in our study produced significant volumes of this type of research. Therefore, we focused exclusively in research which published in seminars or journals , as well as on the receipt of research grants while Indonesia Directorate General of Higher Education also measured about copyright, being a keynote speakers, textbook, and other research output. Indonesia Directorate General of Higher Education weighting score can be seen in Table 2.

We considered the weighting score from Directorate General of Higher

Table 3. Indicators of Research Productivity

No	The Indicator of Research Productivity	Weight
1	Peer Review	1
2	Published Journal:	
	a. Internally (in own department)	1
	b. Nationally unaccredited	2
	c. Internationally unindexed	3
	d. Nationally accredited	4
	e. International indexed	5
3	Published Research in Seminars:	
	a. National	1
	b. International	3
4	Research Grant Proposed	1
5	Source of Research Grant Approved:	
	a. Own Faculty	2
	b. University of X	3
	c. Directorate General of Higher Education (Dikti)	4
6	The Amount of Research Grant Approved (in Rupiah):	
	a. Directorate General of Higher Education (Dikti)	
	• 10 - 25 Million	1
	• >25 - 50 Million	2
	• >50 - 75 Million	3
	• ≥75- 100 Million	4
	b. University of X	
	• ≤10 Million	1
	• >10 - ≤ 15 Million	2
	• >15 - 20 Million	3
	• >20 Million	4
	c. Own Faculty	
	• ≤10 Million	1
	• >10 - ≤15 Million	2
	• >15 - <20 Million	3
	• ≥ 20 Million	4

Education we also asked both faculties about the weight or level of their research productivity which is measured in their KPIs (Key performance indicators) to determine our weight. We provide the weighting system for this paper in Table 3.

Furthermore, for leadership characteristics variable, we measured the head departments in the Faculty of Economics and Faculty of Languages and Arts at the University of X, who were the lecturers' direct superordinate.

Data Sources

We used a quantitative method using a p rimary data source which is obtained from questionnaires. Based on the data collection, the independent variables (individual and leadership characteristics) and the mediator variable (institutional characteristics) used cross-section data, while we used time-series data from previous three years for the dependent variable (research productivity). We measured and summarized the research productivity data from the previous three years in order to obtain the trends of production productivity (e.g., where faculty members usually publish their research, from which institutions they obtain research grants, etc.). We avoided the probability of missing some information which can lead to wrong interpretations if we used only a one year data. We further analysed the data using SPSS, which was sufficient to allow us to compare differences in our results before and after the mediating process. We then gave a questionnaire to lecturers in the

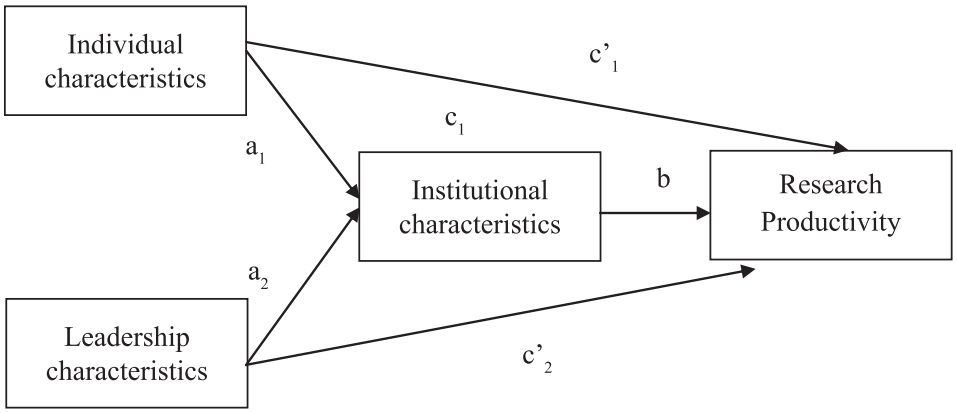

Figure 4. Research framework

Table 4. Descriptive Statistics of Research Productivity

Dimensions	Min	Max	Mean	Category
Peer-Reviewed Journal	0	12	1.37	Low
Published Journal	0	11	1.50	Low
Scientific Seminars	0	12	2.29	Low
Research Grant Proposed	0	9	1.61	Low
Research Grant Approved	0	6	1.47	Low
Grants Awarded by the Directorate General of Higher Education (Dikti)	0	4	0.16	Low
Faculty	0	5	1.26	Low
University	0	3	0.16	Low
Amount of Research Grants Approved (in Million Rupiah. accumulated in 3 years): Directorate General of Higher Education (Dikti)	0	125	4.49	Low
Faculty	0	79.5	22.25	Low
University	0	50	2.68	Low
Others	0	0	0	Low

Faculty of Economics and Faculty of Languages and Arts at the University of X.

Participants

We included all lecturers in the Faculty of Economics and Faculty of Languages and Arts at the University of X, excluding the department heads since they were used to measure the leadership characteristics variable. The number of participants in our study was 100 lecturers, 37 from Faculty of Economics and 63 from Faculty of Languages and Arts. The number of participants was limited due to the low response rate of only 50% within three months.

Analysis

We used descriptive statistics analysis techniques, mediation analysis, and multivariate general linear modelling (GLM). Our research model's framework can be seen on Figure 4.

RESULTS AND DISCUSSION

Descriptive Statistics

As shown in Table 4, all kinds of research productivity outputs were low, with the lowest output being peer-reviewed publications. The lecturers of both faculties tended to publish their research in scientific seminars rather than as journal articles.

Table 5. Average Score of Research Productivity between Master's Degree and Doctoral Degree

Group Statistics	Education level	N	Mean	Std. Deviation	Std. Error Mean
Total productivity	Master's Degree	78	19.03	19.939	2.258
	Doctoral Degree	22	29.86	22.662	4.831

Table 6. T-Test Result of Research Productivity between Master's Degree and Doctoral Degree

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Significance	*t*	Degree of Freedom	Significance (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Total productivity	Equal variances assumed	0.210	0.648	–2.184	98	0.031	–10.838	4.961	–20.684	–0.992
	Equal variances not assumed			–2.032	30.772	0.051	–10.838	5.333	–21.718	0.042

Using independent sample *t*-tests (Table 5), we found that there were differences in research productivity between lecturers with a master's degree and lecturers with a doctoral degree. However, as can be seen in Table 6, the majority of respondents held only a master's degree while it is found that there is a significant difference between research productivity among the master degrees which is lower than the doctoral degree's lecturers. We can conclude that education level influenced research productivity among our sample. It indicates that lecturers who have a doctoral degree have better skills in research (writing, data processing and analysis) and a greater intention to do research. Based on this, it makes sense that most of the research was published through scientific seminars rather than in refereed journals.

In addition, collaboration has a strong effect on research productivity (Abramo, D'Angelo, and Murgia, 2017). Our research found that the lecturers in both faculties did not have strong collaborations with external research partners. This suggests that their research would be improved through strengthening their network with external academic researchers from other universities.

Our results also found that mentoring across both faculties was poor. This means that faculty members did not have enough mentoring opportunities, which ideally serve to continuously give feedback about research activities. 30% of lecturers in both faculties were classified as early career lecturers (1–10 years of experience). Mentorship would help them to sharpen their research skills, bring insight to a new research topic, and maintain their interest in research (Hafsteindottir, Van Der Zwaag, and Schuurmans, 2017; Williams, Medina, Fentem, and Carlson, 2015) .

In terms of the source of research grants, the majority of lecturers in both faculties were funded by their own faculty, even though the amount would be much higher if they received funding from the Indonesia Directorate General of Higher Education (Dikti). However, this is also more difficult since there is strong competition for research grants from Dikti. This sug-

Table 7. Description of Published Journal by Lecturers

No.	Type of Journal	Total	Percentage
1.	International unindexed	56	37%
2.	Internally (Faculty)	37	25%
3.	International indexed	25	17%
4.	National accredited	19	12%
5.	National unaccredited	13	9%

Table 8. Regression Results of The Effect of Individual Characteristics and Characteristics of Leadership on Productivity Research Mediated by Institutional Characteristics

Independent Variable	Dependent Variable	Notation of Coefficient	β	Sig.	*R square*
Individual characteristics	Institutional characteristics	a_1	0.246	0.001	0.516
Leadership characteristics		a_2	0.637	0.000	
Institutional characteristics	Research Productivity	b_1	0.128	0.208	0.016
Individual characteristics	Research Productivity	c_1	0.269	0.008	0.073
Leadership characteristics		c_2	–0.097	0.327	
Individual characteristics	Research Productivity	c'_1	0.216	0.042	0.091
Leadership characteristics		c'_2	–0.221	0.101	
Institutional characteristics					

gests that the majority of respondents were not able to successfully write funding proposals to receive research grants from inst itutions outside their faculty. It seems like funding was a constraint to do research.

As shown in Table 7, the lecturers tend to publish their research in the unindexed international journals and in journals that were internal to their faculty. Only 17 % and 12% were published in international indexed journals and nationally accredited journals, respectively. We can conclude that a lack of writing skill as a reason they did not publish in refereed journals.

Leadership Characteristics

Based on the result, only the third and sixth item of capably fulfils leadership all critical leadership roles were in the moderate category, while the others were in high category. These items explained about the leadership role from the department head perceived by the lecturers about being a good fundraiser and facilitator in research. We can conclude that the role of a leader was still not strong enough to support the lecturers to do research in terms of being a facilitator and assisting them to get the research funds.

Regression Results

We used four stages in the analysis of the effects of individual characteristics on research productivity, as mediated by institutional characteristics. Table 8 shows that the regression coefficient and the significance of the individual characteristics toward the institutional characteristics (a_1) respectively amounted to 0.246 and 0.001. This means that the individual characteristics have a positive and significant impact on institutional characteristics. Furthermore, the regression coefficient of leadership characteristics toward institutional characteristics (a_2) and its significance is equal to 0.637. This means that the characteristics of leadership have a positive influence on institutional characteristics. The value

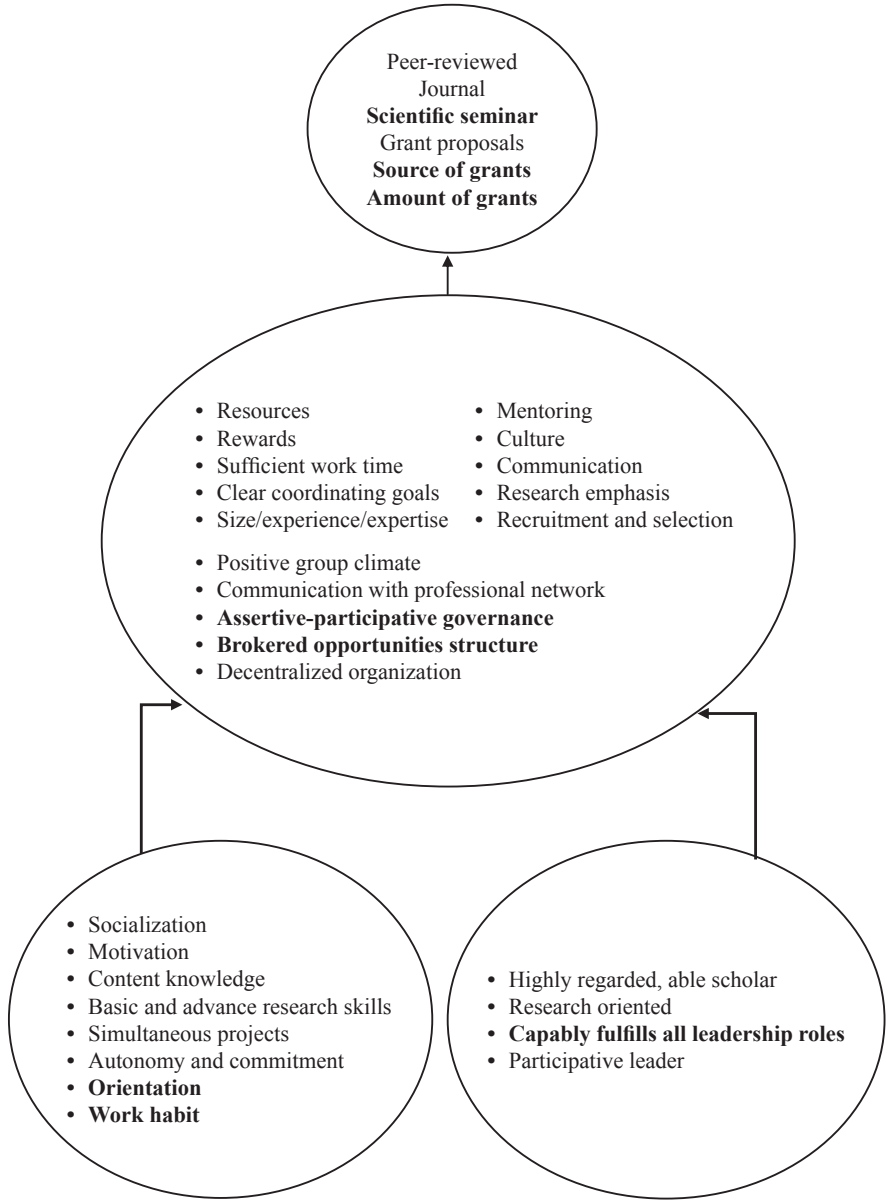

Figure 5. The Effect of Individual Characteristics and Characteristics of Leadership on Productivity Research Mediated by Institutional Characteristics

of R square of individual and leadership characteristics on institutional characteristics is equal to 0.516. This shows that individual and leadership characteristics can explain the institutional characteristics at 51.6% while the 40.4% was explained by other vari ables which is not in this study.

Findings revealed that the relationship between institutional characteristics and research productivity are positive but not significant. Then, institutional characteristics can only explain 1.6% of research productivity. Besides that, individual characteristics have a positive influence and significant impact on research productivity.

Furthermore, leadership characteristics have a negative but insignificant effect on research productivity. Indi-

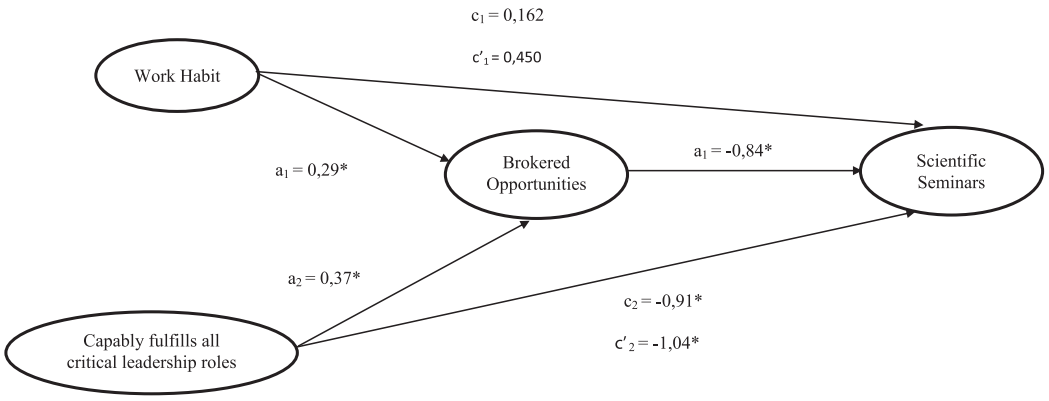

Figure 6. The Effect of Work Habit and Capably Fulfills All Critical Leadership Roles in Publishing Research in Scientific Seminars Productivity Research Mediated by Brokered Opportunities

vidual and leadership characteristics simultaneously can account for 9.1% of research productivity. There is a significant and positive relationship between individual characteri stics and research productivity.

The results of this study are consistent with those found by Bland et al. (2005), which also found that faculty research productivity is influenced by the individual and institutional characteristics (with institutional characteristics as a mediator variable). Hedjazi and Behravan (2011) also found that individual and institutional characteristics affect research productivity. The significant differences come from the dimensions of each variable.

Further analysis using GLM (see Figure 5) demonstrated that there are two specific individual characteristics (work habits and orientations), which are mediated by specific dimensions of institutional characteristics (assertive participative governance and brokered opportunities), in influencing specific aspects of research productivity (scientific seminars, sources of research grants, amount of research grants).

In Figure 6, it can be seen that work habits have a positive and significant effect on brokered opportunities (opportunity to be promoted or to get training and development). This means that the better the work habits in terms of publishing research, the greater the opportunity to get development, such as being nominated for prizes, awards, scholarships, or promotions. Work habits had a positive but not significant correlation with publishing in scientific seminars. This finding shows that the better the work habits, the more the research will be pu blished in scientific seminars. Figure 6 also shows that work habits positively and not significantly influence the scientific seminar after mediated by brokered opportunities. This means that the relationship between work habits and publishing in scientific seminars is fully mediated by brokered opportunities, or in other words, the number of publications in scientific seminar will be improved by the institutions' support.

Capably fulfils all critical leadership roles had a positive and significant influence on brokered opportunities. Furthermore, brokered opportunities had a negative and significant effect

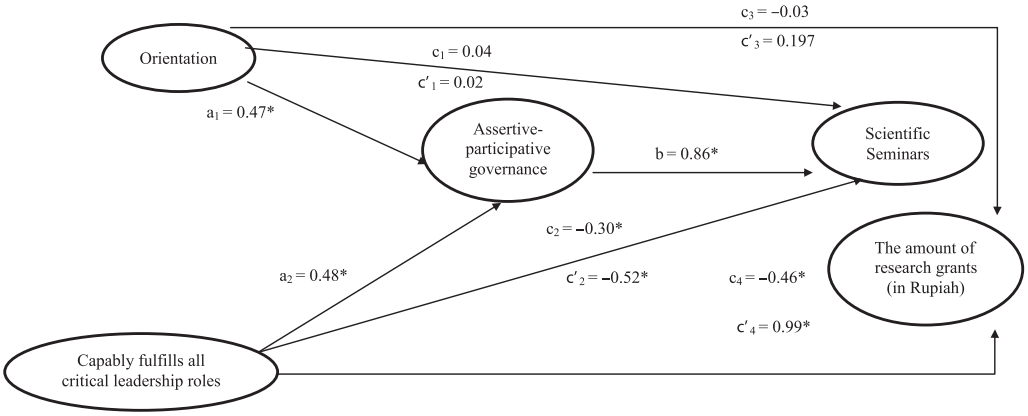

Figure 7. The Effect of Orientation and "Capably Fulfills All Critical Leadership Roles" on Source of Research Grants and The Amount of Research Grants Mediated by Assertive-Participative Leadership Roles

on research productivity. In contrast to the characteristics of leadership, capably fulfils all critical leadership roles negatively and significantly influence research productivity in scientific seminars, either mediated by brokered opportunities or not.

In terms of the average score of its indicators, capably fulfils all critical leadership roles is moderate, as is the score of brokered opportunities, whereas the mean of scientific seminars is categorized as low. This means that there are other variables which cause a negative impact on the statistical result.

In our initial interviews, both lecturers and department heads mentioned that their teaching load was very high, at 18 credit hours, while research and community services only accounted for 3–6 credit hours per week.

From the data we found that the sufficient work time was measured moderate by the lecturers. It means that they did not have authority to focus on more research than teaching and leads to the limited time to do research. So we can conclude that the lack of sufficient work time can be an obstacle to conduct research.

Figure 7 shows that **orientation** also had a positive and significant influence on **assertive-participative governance**. Orientation was about the intention of lectures to balancing the activities inside and outside the university. This means that the lecturers' capability to organize their works in their internal university give a positive impact to the management system at the University.

Capably fulfils all critical leadership roles also had a positive and significant impact on assertive-participative governance. This shows that the better the department head is at fulfilling leadership functions, the better the assertive-participative governance.

Assertive-participative governance also had a positive and significant effect on sources of research grants. This means that assertive-participative governance can assist faculty members to get the research grants.

Orientation had a negative and in-

significant influence on the source of research grants. The high teaching workload leaves insufficient time for research, hampering the research process including finding external funding.

It also can be seen that capably fulfils all critical leadership roles had a negative but insignificant influence on the source of research grants. This suggests that the role of the department head is not strong enough to increase the chances of receiving external research grants.

The effect of orientation on the source of research grants was fully mediated by assertive-participative governance. We can infer that assertive-participative governance can help the lecturers who have a balanced orientation between activities in the internal or external institution to find the source of research grants. Besides that, the effect of capably fulfils all critical leadership roles on the number of research funds was partially mediated by assertive-participative governance. This means that assertive-participative governance helped the lecturers to obtain greater quantities of research grants.

Furthermore, orientation negatively and in significantly influenced the number of research funds. This suggests that the ability of lecturers to balance their activities did not help them to receive higher numbers of research grants.

Capably fulfils all critical leadership roles had a negative but insignificant impact on research funds. This was because the department head was not able to assist the lecturers in obtaining research grants due to their high teaching and administrative workloads.

Assertive-participative governance had a positive and significant effect on the number of grants. This means that the better the management system in the institution in terms of assertive-participative governance, the greater the chances of lecturers to acquire the research grants. Furthermore, after mediation by assertive-participative governance, the influence of orientation on the number of grants became positive, although it was not significant. This means that the effect between orientation and the number of grants was fully mediated by assertive-participative governance ; in other words, it had a role in increasing the num ber of research grants obtained by the lecturers.

The effect of capably fulfils all critical leadership roles on the number of grants was fully mediated by assertive-participative governance. This suggests that assertive-participative governance was able to help the department head to manage the lecturers in order to get higher-value research grants.

Discussion

There are similarities between our results and previous research. Bland et al. (2005) found that individual characteristics influenced research productivity with institutional characteristics as a mediator variable. Hedjazi and Behravan (2011) also reported that individual and institutional characteristics were the determinants of research productivity. Strong individual traits, when also supported by proper institutional management, can have a

significant impact on research productivity.

Using a General Linear Model (GLM), we found that orientation and work habits influenced research productivity in two outputs: scientific seminars and the number of grants. Lecturers who started publishing research in their early academic career tended to be actively involved in scientific seminars and received a greater number of research grants. This supports the previous research that research orientation can determine research productivity (Hedjazi and Behravan, 2011) . Furthermore, Cresswell (1985, in Bland et al. 2005) , stated that successful researchers, who tend to hold the professorial rank, had often successfully published during their early career. This means that positive work habits in early career researchers can be a determinant of research productivity.

Besides, this paper also found that leadership characteristics has no significant influence on lecturers' research productivity and it supported the previous research (Bland et al., 2005; Politis 2005). Furthermore, one dimension of our leadership characteristics which negatively affect research productivity, namely capably fulfils all critical leadership roles (e.g. a good facilitator on research, encouraging lecturers to achieve goals, being a fundraiser, capably to manage their subordinate and resources well). Although the lecturers in our study perceived that their leaders were have a good enough characteristics, but the fact that the lecturers still have low research performance indicates that their leaders still did not have a significant influence on increasing their productivity. This finding supported the previous research which stated that there was no significant influence between leadership characteristics and research productivity (Bland et al., 2005; Politis, 2005).

Uslu and Welch (2016) also discussed the role of leadership in raising research productivity, such as being a good mentor and facilitator in research, helping young researchers get research funds, and introducing younger researchers to their professional research partners in order to widen their network for future collaboration opportunities.

Furthermore, there are two dimensions of institutional characteristics which significantly determine research productivity: brokered opportunities and assertive-participative governance. We found fewer significant predictors of research productivity than Bland et al. (2005). Nonetheless, a strong institutional system can influence research productivity.

CONCLUSIONS

Our conclusions are as follows: 1) the relationship between individual characteristics and research productivity is partially mediated by institutional characteristics; 2) the relationship between leadership characteristics and research productivity is fully mediated by institutional characteristics; 3) the relationship between work habits and research publication at scientific seminars is fully mediated by brokered opportunities; 4) the relationship between capably fulfils all critical leadership roles and research publication at scientific seminars is partially medi-

ated by brokered opportunities; 5) the relationship between orientation and the source of research grants is fully mediated by assertive-participative governance; 6) the relationship between capably fulfils all critical leadership roles and the source of grants is partially mediated by assertive-participative governance; 6) the relationship between orientation and the number of grants is fully mediated by assertive-participative governance ; and 7) the relationship between capably fulfils all critical leadership roles and the number of grants is fully mediated by assertive-participative governance.

Academic Implications

We found fewer character traits which significantly influenced research productivity than the traits revealed by the previous studies. Among individual characteristics, we found that only orientation and work habit influenced research productivity significantly. Among leadership characteristics, capably fulfils all leadership roles was the only variable with a significant effect on research productivity. Among institutional characteristics, only two significantly influenced research productivity, namely brokered opportunities and assertive-participative governance.

Managerial Implications

There are many lecturers who have not succeeded in publishing research in refereed journals. This could be due to lack of writing and research skills, low interest in research, or insufficient time to conduct research. Therefore, it is necessary to assist lecturers by providing research training, for example regarding the procedures for publishing research in scientific seminars and refereed journals. We also suggest that lecturers who have successfully published their research in a refereed journal share their experiences with others lecturers in formal events organized by the department or faculty. Besides, we also suggested to reduce the teaching load in order to give enough time for the lecturers to conduct research.

Fostering mentorships and collaborations can also raise research productivity. Young academic lecturers need good mentors who can give feedback, help them increase their research and writing skills, and introduce them to their professional network to facilitate future collabor ation (Uslu and Welch, 2016).

Furthermore, since the majority of lecturers showed that they did not have enough time to conduct research, if we would like to emphasise the research productivity, it is really important to redesigning or balancing the workload between teaching and research.

Limitations

This study has some limitations regarding the research model, questionnaire, and sample size. Our questionnaire combined multiple questionnaires from many prior researchers so questions may not have been equally robust. A larger sample size would also have significantly improved our results.

Further research

We recommend the further research to use the same research model in this paper to other faculties and institutions, especially at the university which has

a strong intention in research or a good score in research aspect in order to get another result about which dimensions influence the lecturers to do research the most. It is also better to examine the extent to which collaboration, intrinsic motivation, and extrinsic motivation may affect interest in conducting research. In addition, our study examined a great number of factors; further research is expected to select fewer factors in order to deliver sharper analysis.

Additionally, if future research on this subject is conducted at an Indonesian institution or university, it would be better to use the indicators from Directorate General of Higher Education, or to compare the Directorate's measurement of research productivity with indicators used by the majority of previous.

References

Abramo, G., D'Angelo, A.C., & Murgia, G. (2017). The relationship among research productivity, research collaboration, and their determinants. *Journal of Informetrics, 11,* 1016-1030.

Bay Jr, B.E., & Clerigo, M.E.C. (2013). Factors associated with research productivity among oral healthcare educators in an Asian University. *International Education Studies, 6*(8), 124-135.

Bland, C.J., Center, B.A., Finstad, D.A., Risbey, K.R., & Staples, J.G. (2005). A theoretical, practical, predictive models of faculty and research department productivity. *Academic Medicine*, 80 (3), 225-237.

Burke, K., Fender, B., & Taylor, S. (2007). Walking the tightrope: the impact of teaching and service on scholarly productivity for accountants. *Academic Business World International Conference, Nashville, Tennessee, USA*, 1-13.

Chen, Y., Nixcon, M.R., Gupta, A., & Hoshower, L. (2010). Research productivity of accounting faculty: An exploratory study. *American Journal of Business Education,* 3 (2), 101-113.

Chung, S.W., Clifton, J.S., Rowe, A.J., Finley, R.J., & Warnock, G.L. (2009). Strategic faculty recruitment increases research productivity within an academic university division. *Canadian Journal Surgery,* 52 (5), 401-406.

Chun-Yu C., Yen-Chun J.W., & Wen-Hsiung W. (2013). A sustainable collaborative research dialogue between practitioners and Academics. *Management Decision*, 566-593.

Goodall, A.H. (2009). Highly cited leaders and the performance of research universities. *Research Policy, 38,* 1079-1092.

Goodall, A.H., McDowell, J.M., & Singell, L.D. (2014). Leadership and the re-

search productivity of university departments. IZA: Discussion paper (7903).

Hafsteinsdottir, T.B., Van Der Zwaag, A.M., & Schuurmans, M.J. (2017). Leadership mentoring in nursing research, career development and scholarly productivity: A systematic review. *International Journal of Nursing Studies, 75,* 21-34.

Hallinger, P., & Bryant, D.A. (2016). Exploring features of highly productive research contexts in Asia: A comparison of knowledge production in educational leadership in Israel and Hong Kong. *Asia Pacific Journal of Education, 36*(1), 165-184.

Hedjazi, Y., & Behravan, J. (2011). Study of factors Influencing agriculture research productivity of faculty members in Iran. *Higher Education*, *62*(5), 635-647.

Hill, K. (2006). University research and local economic development. www.asu.edu/president/p3/Reports/univResearch.pdf. Retrieved on April 9, 2016.

Hu, Q., & Gill T.G. (2000). IS faculty research productivity: Influential factors and implications. *Information Resources Management Journal, 13*(2), 15-25.

Indonesia Directorate General of Higher Education. (2015). Classification and ranking of universities in Indonesia. ristekdikti.go.id/wp-content/uploads/2016/02/klasifikasi20151.pdf. Accessed on April 27, 2016.

Jorge, B., Michael, C., & George, H. (2006). Doctoral programs in finance: academic content and research productivity. *Journal of Applied Finance*, *16*(2), 82-91.

Jung, J. (2012). Faculty research productivity in Hong Kong across academic discipline. *Higher Education Studies*, *2*(4), 1-13.

Kaufman, R.R., & Chevan, J. (2011). The gender gap in peer-reviewed publications by physical therapy faculty members: A productivity puzzle. *Physical Therapy*, *91*, 122–131.

Kok, S. K., & McDonald, C. (2017). Underpinning excellence in higher education─an investigation into the leadership, governance and management behaviours of high-performing academic departments. *Studies in Higher Education, 42*(2), 210-231.

Lee, S., & Bozeman, B. (2005). The impact of research collaboration on scientific productivity. *Social Studies of Science*, 35 (5), 673-702.

Lertputtarak, S. (2008). An investigation of factors related to research productiv-

ity in a public university in Thailand: A case study. (Dissertation). Victoria University.

Long, R.G., Bowers, W.P., Barnett, T., & White, M.C. (1998). Research productivity of graduates in management: Effects of academic origin and academic affiliation. *Academy of Management Journal*, *41*(6), 704-714.

Mamiseishvili, K., & Rosser, V.J. (2010). International faculty and citizen in the United States: An examination of Reviews their productivity at research universities. *Research in Higher Education*, *51*(1), 88-107.

Martinez, R.S., Floyd, R.G., & Erichsen, L.W. (2011). Strategies and attributes of highly productive scholars and contributors to the school psychology literature: Recommendations for increasing scholarly productivity. *Journal of School Psycology, 49,* 691-720.

Nguyen, Q.H., & Klopper, C.J. (2014). The influences of the research environment within a university research on productivity of academic staff - a case study in a research-oriented university in Vietnam. *International Journal of Art and Sciences*, 189-197.

Politis, J.D. (2005). Dispersed leadership predictor of the work environment for creativity and productivity. *European Journal of Innovation Management, 8*(2), 182-204.

Ramsden, P. (1994). Describing and explaining research productivity. *Higher Education*, *28*(2), 207-226.

Scimago Journal & Country Rank. (2016). Country rank in the Asiatic region based on documents. http://www.scimagojr.com. Retrieved on March 2018.

Segun-Adeniran, C.D. (2015). Leadership styles and job productivity of university library staff: Interrogating the Nexus. *Library Philosophy and Practice (e-journal)*. Paper 1269. http://digitalcommons.unl.edu/libphilprac/1269. Accessed pada April 2016.

Sondari, M.C., Tjakraatmadja, J.H., & Build, Y.R. (2014). Foreign co-authorship phenomenon: A preliminary study of research productivity of Higher Education Institution in Indonesia. Full paper proceeding gtar, 1, 225-235.

Smith, J.S., Fox, G.L, Park, S.H.S., & Lee, L. (2008). Institutional antecedents to research productivity in operations: The US perspective. *International Journal of Operations & Production Management, 28*(1), 7-26.

Teodorescu, D. (2000). Correlates of faculty publication productivity: A cross-national analysis. *Higher Education*, *39*(2), 201-222.

Uslu, B., & Welch, A. (2016). The influence of universities' organizational features on professional intellectual leadership. *Studies in Higher Education,* 1-15.

Vange, T.J.R., Marler, J.H., & Wright, P.M. (2005). Research productivity, gender, family and tenure in organization science careers. *Sex Roles*, *53*(9), 727-738.

Webber, J.K., Ser, E., & Goussak, G.W. (2015). Work habits as positive and negative influence on workplace productivity. Global Journal of Business Research, 9 (1), 39-48.

Weiler, H.N., Rosenblit, S.G., & Sawyerr, A. (2006). Universities as centers of research and knowledge creation: an endangered species? Summary Report, Colloquium on Research and Higher Education, UNESCO.

Williams, V.N., Medina, Fentem, L.R., & Carlson, J.R. (2015). Assessment of the research component in an 11-month interprofessional faculty development program for early career faculty. *Currents in Pharmacy Teaching and Learning, 7,* 312-316.

Wills, D., Ridley, G., & Mitev H. (2013). Research productivity of accounting Academics in changing times. *Journal of Accounting and Organizational Change*, (1),4-25.