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The Institution, School Leaders, and Faculty Characteristics: Predictive Model of Research Productivity

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ABSTRACT

Research productivity is necessary for schools to remain generators of knowledge. This means teachers should not only be lecturers but also researchers. Hence, this study looked into the institutional, school leaders, and individual faculty characteristics as predictors of research productivity. Utilizing predictive correlation design, the researchers surveyed 109

respondents from four selected schools in Davao City. The respondents were school administrators, staff, and faculty from four departments: Education, Arts and Science, Business and others. Using Forward Wald Logistic Regression, results revealed that for institutional characteristics, sufficient work time predicts research productivity; while for individual faculty characteristics, content knowledge is the predictor. Conversely, school leaders' characteristics do not predict research productivity. When categorized by department, none of the characteristics predicts research productivity of researchers from Education, Arts and Science, and Business departments. In contrast, sufficient work time and content knowledge predict research productivity of Department 4 composed of school administrators, staff, and faculty from basic education and medical-related courses. The result suggests that familiarity of faculty members to research makes them independent in their research effort. Therefore, in addition to provisions for adequate time for research, efforts in improving research productivity should focus on academic staff who has limited research capability.

KEYWORDS

Research productivity, institutional characteristics, school leaders, individual faculty characteristics, sufficient work time, content knowledge, predictive correlational design, Philippines, Asia

INTRODUCTION

Schools across the world are considered producers of new knowledge. They are seen as modern entrepreneurial engines and generators of knowledge through research. Hence, the role of academics is not only to teach but also to research. Moreover, institutional reputation among schools is closely connected to research productivity. This means that increases in research productivity are connected with an increasingly favorable reputation. As what Dundar & Lewis (2008) noted, research productivity of schools was highly related to their favorable reputation. Therefore, if schools aim at gaining a favorable reputation, they need to increase their research productivity.

However, in the study of Wichian, Wongwanich, and Bowarnkitiwong (2009), in which they identified the factors affecting research productivity of faculty members in government universities in Thailand using Lisrel and

Neural Network Analyses, they found that the average of each faculty member's research productivity was 0.40 research pieces per year. They further found that the causal relationship suggested consistently that researcher characteristic, research competence, institutional support for research work and researchership had direct effects on research productivity. Similarly, Zabar-Iqbal & Mahmood (2011), looked into the factors related to low research productivity at higher education level in Pakistan. They concluded that extra teaching load, performance of administrative duties along with academic duties, lack of funds, non-existence of research leave, negative attitude of the faculty towards research, lack of research skills, non-availability of latest books, absence of professional journals, and less number of university own journals, are the major causes of low productivity and reduced research productivity of the university faculty members.

In the Philippines, Vinluan (2012) conducted an objective assessment using bibliometric indicators of research productivity in education and psychology. The results were benchmarked against its Southeast Asian neighbors' research productivity in the same fields. Results showed that the Philippines ranked low in research productivity compared to Singapore, Thailand, and Malaysia, particularly starting in the 1990s. Only a few researchers, mainly coming from a small number of higher education institutions, were publishing papers on a regular basis in a small range of journals. Those journals had either no or low impact factors and most papers had low citation counts. This low research productivity was explained in terms of economic indicators, the local orientation of many social science research studies, funding, individual characteristics of researchers, and the epistemic culture of knowledge production in the country.

In line with this, Bland, Center, Finstand, Risbey, and Staples (2005) presented the characteristics of units with successful faculty research production. They gathered their data from the University of Minnesota. This makes the findings particularly helpful for professional schools. The study's findings aligned with those of other studies examining a variety of program types, suggesting they also have a broader application. Bland, Center, Finstad, Risbey, and Staples findings indicate that institutions with productive faculty share important characteristics on the levels of the institution, leadership, and individual faculty member. They further articulated that success at any one level is not sufficient to account for successful research productivity. Institutions should aspire to develop relevant characteristics at all three levels.

Moreover, a culture of research requires both institutional and unit-based leaders to set clear research goals and communicate them effectively. The goals must be accompanied by a well-defined plan of research success evaluation. This perspective paved the way for the current study which looks into the characteristics of higher education institutions on the levels of the institution, leadership, and individual faculty.

FRAMEWORK

Academic staff members in any higher institution are provided with the opportunity to focus on an area of inquiry, develop a research program and later share the knowledge with students and others in the drive to develop professional skills and impact on a field and society, as a whole. Research provides a good platform for teaching faculty members to become successful academics. This is because research develops academic knowledge and reinforces the skills needed for effective knowledge transfer. It also inspires academics towards hard work, fills the gaps of previous researches, and creates an opportunity for future research (McCabe & McCabe, 2010).

Frey's (2008) sample of 42 Northwestern University senior faculty in the natural sciences produced a correlation of .37 between the number of citations and a teaching skill factor. Hoyt and Spangler (2006) also found that research involvement as judged by department heads was modestly related to student ratings of teaching in natural science courses, but not in social science courses. Moreover, Bresler (2008) found that student ratings of teachers were higher for Tufts University faculty members receiving research grants.

Further substantiation of these modest correlations would indicate that many good teachers are also good researchers. Several reasons might explain such a hypothesis. Teaching effectiveness and research productivity are both likely affected by the general ability and energy levels that individual faculty member possesses. Those who teach well also tend to have the ability and energy to be above-average researchers or scholars (Alrahlah, 2016). The second reason is what Linsky and Straus (2015) termed a spill-over effect. Research could influence teaching when the excitement and involvement of research are communicated to students and they are able to see knowledge as a steadily growing thing. Participation in research could also help maintain the faculty member's interest in the subject matter.

Moreover, performance-based management employs a reward system, including tenure, promotion, salary increments and other financial support for faculty members based on their attaining success on concrete indicators, such as the number of publications, book awards, research grants, and other quantifiable forms of recognition. These criteria not only influence promotion decisions but also reinforce future academic research and attract more research funds (Braxton et al., 2002). Likewise, several studies have examined shared governance as an influential factor in productivity. The tradition of shared governance in higher education envisions a partnership between an institution and its faculty members. Faculty members must continue to work together to assess current institutional policies and identify and prioritize specific ways to improve the institution's working environment as well as each faculty members' contribution to the institution (Gappa, 2010). It was concluded that a combination of organizational freedom and organizational coordination are both feasible and desirable for effective and productive performance.

Bland, Center, Finstad, Risbey, and Staples (2005) presented a Predictor Model of Research Productivity. In the model, faculty research productivity is highest when a faculty member has specific individual qualities, works in an institution that is highly conducive to research and is led by someone who possesses essential leadership qualities and uses an assertive–participatory management approach. Moreover, the model synthesized the literature on faculty research productivity into a model, which asserts that high research productivity is strongly associated with institutional, leadership and individual characteristics.

OBJECTIVE OF THE STUDY

This study determined the characteristics of the institution, the school leaders, and the individual faculty as a basis for predicting faculty research productivity of the school. It specifically analyzed which among the characteristics best predicts faculty and departmental research productivity.

METHODOLOGY

This study utilized a correlational research design to identify variables that can effectively predict an outcome or criterion. Since in the study more than one predictor variable is used to predict a criterion, the analysis utilized

multiple regression. This extremely powerful statistical procedure can estimate the collective as well as the individual contributions of all predictor variables (del Seigle, 2017). This analysis made it possible to develop an effective prediction for research productivity.

The researchers used non-probability sampling to identify the sample population. According to Creswell (2012) in non-probabilistic sampling, the researchers select individuals because they are available and represent some characteristics the investigators seek to study. Hence all four schools which participated in the study share the following characteristics: (a) run by religious organizations; (b) are non-stock and non-profit, (3) are offering higher education; and (d) are located in Metropolitan Davao. Individuals from the four schools who answered the survey questionnaire include faculty members, research director, subject area coordinators and members of the school administration. There were 29 respondents from Holy Cross of Davao College, 23 from San Pedro College, 14 from Brokenshire Colleges, and 42 from Assumption College of Davao. Thus, 109 respondents from four schools in Davao City participated in the study. A summary of the respondents is presented in the table.

	Schools	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	.9	.9	.9
	Holy Cross of Davao College	29	26.6	26.6	27.5
	Brokenshire College	14	12.8	12.8	40.4
	San Pedro College	23	21.1	21.1	61.5
	Assumption College of Davao	42	38.5	38.5	100.0
	Total	109	100.0	100.0	

The researchers utilized a survey questionnaire for this study. The first part of the questionnaire focused on the respondents' profile. The second part focused on the respondents' research productivity where productivity is measured based on the research produced by participants in the last five years. The third part of the questionnaire focused on the institutional, school leaders and individual faculty characteristics that predict research productivity. It is a 78-item survey questionnaire based on the research productivity model designed by Bland, Center, Finstad, Risbey, and Staples

(2005). It is divided into three sections: the institution, the school leaders, and the individual faculty. Respondents rated the items in each part from one to five with one equating to the response strongly agree to five for strongly disagree. Validity and reliability were achieved through subjecting the research tool to validation and pilot-testing prior to administration. To further establish the credibility of the test, the researcher also made use of the Rasch model for the test's construct validity. To analyze the data, they used Forward Wald Logistic Regression and stepwise multiple regression.

RESULTS AND DISCUSSION

Institutional Characteristics that Best Predict Research Productivity

Among the several institutional characteristics variables, the variable sufficient work time showed statistically significant at 0.05 level of significance (Chi-square 6.372, $p<0.05$) as presented in the model, Likelihood of RP = – 3.363 + 0.828 SWT. The model explained the 8.5 percent (Nagelkerke R^2, 0.085) of the variance in research productivity and correctly classified 76.1 percent of cases. The results also showed that for every unit increase in the variable sufficient work time, the odds of research productivity would increase by 2.289 (exp (0.158)). This means that if teachers have enough time, they are likely to conduct research. In addition, the logistic regression predicts the success of a teacher in research if he/she gets a rating of at least 4.0 (>-intercept (3.463)/coefficient (0.828)) in the variable sufficient work time.

Table 1. Prediction Model of Research Productivity in terms of Institutional Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	df	Sig	Exp(B)	Lower	Upper
Sufficient Work Time (SWT)	0.828	0.358	5.526	1	0.019	2.289	1.148	4.564
Constant	-3.463	1.044	11.001	1	0.001	0.031		
Model: Research Productivity (RP) = – 3.363 + 0.828 SWT								
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	113.393		0.085		6.372	1		76.1%

Question No. 25 (Q25) of SWT							95% C.I. for Exp(B)	
	B	SE	Wald	df	Sig	Exp(B)	Lower	Upper
Q25: The school ensures that the faculty members have adequate time to conduct research projects	0.567	0.282	4.053	1	0.044	1.763	1.015	3.063
Constant	-2.768	0.863	10.289	1	0.001	0.063		
Model: Research Productivity = – 2.768 + 0.567 Q25								
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	Correct Class %	
	115.140		0.062		4.625	1	76.1%	

Post-hoc analysis showed that question (Q) 25 of the questionnaire "The school ensures that faculty members have adequate time to conduct research project" statistically manifests significant at 0.05 level of significance (Chi-square 4.625, $p<0.05$). The model explained the 6.2 percent (Nagelkerke R^2, 0.062) of the variance in research productivity and correctly classified 76.1 percent of cases. The results also showed that for every unit increase in the ratings of Q25, the odds of research productivity would increase by 1.763 (exp (0.576)). This implies that schools should design the work schedule of teachers in such a way that they have time to do research work. In addition, the logistic regression predicts the success of a teacher in completing research if Q25 gets a rating of at least 4.0 (>-intercept (2.768)/ coefficient (0.567)) in the variable sufficient work time. The result is in line with the findings of Brownell & Tanner (2012) in which their respondents identified lack of time as a barrier to research productivity. This lack of time for research may result from the number of teaching loads that teachers have to perform on top of other teaching-related tasks. The result further implies that giving sufficient work time for teachers will translate to success in research productivity.

School Leader's Characteristics that Best Predict Research Productivity

The Forward Wald Logistic Regression analysis showed that only the constant ($p<0.05$) and none of the school leaders characteristics (scholar,

research-oriented, critical leadership role, and participative leader) manifests a significant predictor to the research productivity at a 0.05 level of significance. This implies that school leaders' characteristics are not the variables that could predict research productivity. As what Maassen (2012) pointed out, research productivity is highly dependent on the belief and general orientation of faculty to advance in their discipline.

Moreover, Hemming, and Russel (2015) found that research self-efficacy is the most significant predictor of research productivity. This means that faculty members rely on their personal skills rather than their school heads in their research endeavor.

Table 2. Prediction Model of Research Productivity in terms of School's Leaders Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	df	Sig	Exp(B)	Lower	Upper
Constant	-1.161	0.225	26.675	1	0.00	0.313		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	119.765		0.000		0.00	0		76.1%

Individual Faculty Characteristics that Best Predict Research Productivity

Among the several individual faculty characteristics variables, the variable content knowledge (CK) showed to be statistically significant at 0.05 level of significance (Chi-square 11.661, $p<0.05$) based on the model, Likelihood of RP = – 4.564 + 1.132 CK. The model explained the 15.2 percent (Nagelkerke R^2, 0.152) of the variance in research productivity and correctly classified the 76.1 percent of cases. The results showed that for every unit increase in the variable content knowledge, the odds of research productivity would increase by 1.132 (exp (0.3.102)). This implies that more research knowledge leads to more research productivity. In addition, the logistic regression predicts the success of a teacher in research if he/she gets a rating of at least 4.0 (>-intercept (3.463)/coefficient (0.828)) in the variable content knowledge.

Table 3. Prediction Model of Research Productivity in terms of Individual Faculty Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Content Knowledge CK)	1.132	0.380	8.855	1	0.003	3.102	1.472	6.539
Constant	-4.564	1.222	13.941	1	0.000	0.010		
Model: Research Productivity (RP) = – 4.564 + 1.132 CK								
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	113.393		0.152		11.661	1	0.001	76.1%
Question No. 62 (Q62) of CK							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Q62: I am knowledgeable of the discoveries in my research area	1.003	0.349	8.246	1	0.004	2.725	1.375	5.403
Constant	-4.140	1.125	13.543	1	0.000	0.016		
Model: Research Productivity = – 4.140 + 1.003 Q62								
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	Sig	Correct Class %
	107.918		0.149		11.299	1	0.001	75.9%

Post-hoc analysis showed that Q62 of the individual faculty characteristic variable content knowledge with the statement, "I am knowledgeable of the discoveries in my research area" manifests to be statistically significant at 0.05 level of significance (Chi-square 11.299, $p<0.05$). The model explained the 14.9 percent (Nagelkerke R^2, 0.149) of the variance in research productivity and correctly classified 75.9 percent of cases. The results also showed that for every unit increase in the ratings of Q62, the odds

of research productivity would increase by 1.003 (exp (.2.725). In addition, the logistic regression predicts the success of a teacher in completing research if Q62 gets a rating of at least 4.0 (>-intercept (4.14)/coefficient (1.003) in the variable content knowledge. The result further implies that having a good faculty development program that helps faculty members in improving their content knowledge in their area of specialization would improve their research productivity. As what Hardre, Beesley, Miller, and Pace (2011) found, research valuing and research effort positively influence research productivity. Moreover, Horodnic and Zaiti (2015) stressed that faculty researchers who are committed to their work are more likely to be productive researchers than those who focus on external rewards.

Institutional, School Leaders and Individual Characteristics that Best Predict Group (Departmental) Research Productivity

Institutional Characteristics. The results showed that only the constant ($p<0.05$) and none of the institutional characteristics manifests a significant predictor to the research productivity at 0.05 level of significance. The result further implies that institutional characteristics are not the variables that could predict research productivity of teachers in the Education Department.

Table 4. Prediction Model of Research Productivity of Department 1 (Education) in terms of Institutional Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-1.281	0.357	12.841	1	0.00	0.278		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	48.170		0.000		0.00	0		78.3%

School Leaders Characteristics. The results showed that only the constant ($p<0.05$) and none of the school leaders characteristics in Department 1 (Education) manifests a significant predictor to research productivity at a 0.05 level of significance. The results further imply that school leaders' characteristics are not the variables that could predict research productivity of the teachers in the Education Department.

Table 5. Prediction Model of Research Productivity of Department 1 (Education) in terms of School Leaders Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-1.281	0.357	12.841	1	0.00	0.278		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	48.170		0.000		0.00	0		78.3%

Individual Faculty Characteristics. The results showed that only the constant ($p<0.05$) and none of the individual faculty characteristics of Department 1 (Education) manifests a significant predictor to research productivity at 0.05 level of significance. The result further implies that the individual faculty characteristics are not the variables that could predict research productivity of the teachers in the Education Department.

Table 6. Prediction Model of Research Productivity of Department 1 in terms of Individual Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-1.281	0.357	12.841	1	0.00	0.278		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	48.170		0.000		0.00	0		78.3%

In summary, institutional, school leaders and individual faculty characteristics do not predict the research productivity of teachers in the education department. For Hardre (2012), research productivity is a demonstration of responsiveness to workplace characteristics. It may help to explore workplace characteristics to fully understand the findings. In addition, Okiki and Iyabo (2013) found that the barrier to research productivity of Education faculty in Nigeria is low internet bandwidth and financial constraints; however, the respondents of the current study may easily address these barriers. Moreover, they found that socio-demographic

variables have significantly contributed to research productivity. Such variables were not explored in this current study.

Department 2 (Arts and Science)

Institutional Characteristics. The results showed that none of the institutional characteristics manifest a significant predictor to research productivity at 0.05 level of significance. The result further implies that institutional characteristics are not the variables that could predict research productivity of teachers in the Arts and Science Department.

Table 7. Prediction Model of Research Productivity of Department 2 (Arts and Science) in terms of Institutional Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-0.405	0.645	0.395	1	0.530	0.667		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	13.460		0.000		0.00	0		60.0%

School Leaders Characteristics**.** The results showed that none of the school leader's characteristics of Department 2 manifest a significant predictor to research productivity at a 0.05 level of significance. The results imply that a school leader's characteristics are not the variables that could predict research productivity of teachers in the Arts and Science Department.

Table 8. Prediction Model of Research Productivity of Department 2 in terms of School's Leaders Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-0.405	0.645	0.395	1	0.539	0.667		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	13.460		0.000		0.00	0		60.0%

Individual Faculty Characteristics. The results showed that none of the individual faculty characteristics of Department 2 manifests a significant predictor to research productivity at a 0.05 level of significance. The results imply that the individual faculty characteristics are not the variables that could predict research productivity of the teachers in the Arts and Science Department.

Table 9. Prediction Model of Research Productivity of Department 2 in terms of Individual Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-0.405	0.645	0.395	1	0.530	0.667		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	13.460		0.000		0.00	0		60.0%

In general, institutional, school leaders and individual faculty characteristics do not predict research productivity of Arts and Science faculty. Tien (2008) found that among all rewards, the most important to many faculty members is an increase in personal income. While reward is among the characteristics evaluated in the questionnaire, additional compensation was not directly stated. From this, it can be implied that increasing income among all others will help improve research productivity of faculty members.

Department 3 (Business)

Institutional Characteristics. The results showed that none of the institutional characteristics manifest a significant predictor to research productivity at a 0.05 level of significance. The result implies that institutional characteristics are not the variables that could predict research productivity of teachers in the Business Department.

Table 10. Prediction Model of Research Productivity of Department 3 in terms of Institutional Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-1.050	0.439	5.715	1	0.017	0.350		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	30.903		0.000		0.00	0		74.1%

School Leaders Characteristics. The results showed that none of the school leaders characteristics of Department 3 manifests a significant predictor to research productivity at a 0.05 level of significance. The result implies that school leaders characteristics are not the variables that could predict research productivity of teachers in the Business Department.

Table 11. Prediction Model of Research Productivity of Department 3 in terms of Schools Leaders Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-1.050	0.439	5.715	1	0.017	0.350		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	30.903		0.000		0.00	0		74.1%

Individual Faculty Characteristics. The results showed that none of the individual faculty characteristics of Department 3 manifests a significant predictor to the research productivity at a 0.05 level of significance. The results further implied that the individual faculty characteristics are not the variables that could predict research productivity of teachers in the Business Department.

Table 12. Prediction Model of Research Productivity of Department 3 in terms of Individual Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-1.050	0.439	5.715	1	0.017	0.350		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	30.903		0.000		0.00	0		74.1%

In summary, institutional, school leaders, and individual faculty characteristics do not predict the research productivity of teachers. This is in line with Horodnic and Zait (2015) who focused on motivation. Using Tobit regression model on a representative sample, they found that intrinsic motivation is positively correlated with research productivity, whereas extrinsic motivation is negatively correlated.

Department 4 (Others)

Institutional Characteristics. Among the several variables of institutional characteristics, the variable sufficient work time showed to be statistically significant at 0.05 level of significance (Chi-square 13.607, $p<0.05$) based on the model, Likelihood of RP = = – 6.643 + 4.356 SWT. The model explained the 31.5 percent (Nagelkerke R^2, 0.315) of the variance in research productivity and correctly classified the 80.6 percent of cases. The result also showed that for every unit increase in the variable sufficient work time, the odds of research productivity would increase by 4.356 (exp (77.907)). In addition, the logistic regression predicts a success of the teacher in completing a research if the teacher gets a rating of at least 1.53 (>-intercept (6.643)/coefficient (4.356)) in the variable sufficient work time. This means that giving sufficient work time for teachers would translate to a success in research productivity of Department 4.

Table 13. Prediction Model of Research Productivity of Department 4 in terms of Institutional Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	df	Sig	Exp(B)	Lower	Upper
Sufficient Work Time (SWT)	4.356	1.949	4.995	1	0.025	77.907	1.709	3551.48
Constant	-6.643	2.841	5.461	1	0.019	0.001		
Model: Research Productivity (RP) = – 6.643 + 4.356 SWT								
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	sig	Correct Class %
	26.882		0.315		13.607	2	0.001	80.6%

School Leaders Characteristics. The results showed that none of the schools leader's characteristics of Department 4 manifest a significant predictor to the research productivity at a 0.05 level of significance. The results further implied that schools leader's characteristics are not variables that could predict research productivity of the teachers in Department 4.

Table 14. Prediction Model of Research Productivity of Department 4 in terms of School's Leaders Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	Df	Sig	Exp(B)	Lower	Upper
Constant	-1.099	0.385	8.417	1	0.004	0.333		
Model Summary	-2 Log likelihood		Nagelkerke R Square		Chi-Square	Df	p-vaue	Correct Class %
	40.488		0.000		0.00	0		75.0%

Individual Faculty Characteristics. Among the several variables of individual faculty characteristics, the variable content knowledge (CK) showed to be statistically significant at 0.05 level of significance (Chi-square 14.642, $p<0.05$). The model explained the 49.5 percent (Nagelkerke R^2, 0.495) of the variance in research productivity and correctly classified the 83.3 percent of cases. The results also showed that for every unit increase in the variable content knowledge, the odds of research productivity would increase by 2.452 (exp (11.615)). In addition, the logistic regression

predicts the success of a teacher in completing a research if the teacher gets a rating of at least 3.75 (>-intercept (9.203)/coefficient (2.452)) in the variable content knowledge. The result implies that having a good faculty development program that will help faculty members in improving their content knowledge in their area of specialization would improve the research productivity of Department 4.

Table 15. Prediction Model of Research Productivity of Department 4 in terms of Individual Characteristics

Variable in the Equation							95% C.I. for Exp(B)	
	B	SE	Wald	df	Sig	Exp(B)	Lower	Upper
Content Knowledge	2.452	0.893	7.535	1	0.006	11.615	2.017	66.901
Constant	-9.203	3.233	8.103	1	0.004	0.00		

Model: Research Productivity (RP) = – 9.203 + 2.452 CK

Model Summary	-2 Log likelihood	Nagelkerke R Square	Chi-Square	Df	sig	Correct Class %
	25.847	0.495	14.642	2	0.000	83.3%

Interestingly, sufficient work time as an indicator of institutional characteristics and content knowledge as an indicator of individual faculty characteristics predict research productivity of Department 4. Unlike Department 1 (Education), Department 2 (Arts and Science), and Department 3 (Business), Department 4 are respondents from varied fields: Midwifery, Administration, Senior High School Faculty, Engineering, Community Extension Service, NSTP, Records and Admission, Pharmacy, Medical Laboratory Science, Nursing, Physical Therapy, Research and Publication, OSA, and Alumni). This implies that faculty from education, arts and social science, and business departments are independent in their research endeavor and have sufficient skills necessary to navigate in their workload and research endeavor. On other hand, the Department 4, consisting mostly of administrators, staff and faculty from the medical field are in need of guidance in their research efforts because this may be something they are not frequently exposed too.

CONCLUSIONS

The task of balancing teaching and research work is very challenging to majority of faculty members. Because research takes time, faculty members who engage in research should be given sufficient work time to help them do the tasks necessary to complete a research work? To do this, the teacher-researchers workload should be reviewed. Existing policy on deloading of teachers conducting research should be evaluated to assess its effectiveness as a valid basis for revisions if deemed necessary. When it comes to school heads, faculty members rely on them as leaders not as research mentors. Hence, their research skills do not necessarily influence faculty members' motivation to conduct research. However, their leadership qualities can help boost research productivity by providing support to faculty researchers by means of subject loading adjustments to meet the required sufficient work time for research. When it comes to individual faculty characteristics, motivation is more intrinsic than extrinsic.

RECOMMENDATIONS

The result of this study should be used as a basis for a well-defined plan of action to improve research productivity. Moreover, it will help to further explore the variables sufficient work time and content knowledge through qualitative approaches. Future researchers should also take into consideration the demographic profile of teachers to gain a broader understanding of teachers' research productivity.

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