



Transformational Behavior of Department Heads and ICT Integration: Their Impact on the Research Productivity of Faculty Members

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ABSTRACT

The effect of department heads' transformational leadership behavior and ICT integration of faculty members on research productivity at Bulacan State University utilized three standardized instruments. The first instrument on transformational leadership is highly reliable as evidenced by the Cronbach's alpha of .91. The second instrument on ICT integration was tested by [6] for its validity and reliability. Meanwhile, the questionnaire on faculty member's research productivity was adapted from [7]. The major problem of the study was to appraise the impact of transformational leadership behavior and ICT integration on the research productivity of faculty members at Bulacan State University. The outcomes showed that for every unit increase in holding high performance expectations and providing intellectual stimulation can produce a .356 also .674 growth in faculty members' research efficiency. Factors such as "nature of school leadership", "modeling behavior", "providing individual support", and "strengthening school culture" likewise contributed to faculty members' research production but not to a significant level. The 10.31 F-ratio obtained was found crucial with .05 alpha shows that school heads' transformational leadership behavior formed a very substantial set of predictors for the research production of faculty at Bulacan State University.

Key words : ICT integration, Department Heads, Leadership Behavior, Research Productivity, Transformational Leadership

1. INTRODUCTION

The Department head is the primary person responsible in assuring the effectiveness and efficiency of the school. The head also portrays an important part in upholding the school outcomes by influencing and inspiring educators to do research, in addition to improving the school environment and setting. School leaders are essential in initiating and upholding connection concerning the ideas of educators' existing passions and ideological framework.

Transformational leadership skills are certainly a part of the department head's position. The principal needs to recognize how to lead his staff without becoming an authoritarian who mandates every move of the staff. One outstanding leadership quality of a successful head is his ability to create harmony among his academic staff and work with them congenially [1] & [2]. The leadership skills enable the school leaders to create a solid relationship between teachers, students and staff.

The school leader unites and guides the school to strive toward a shared vision. Moreover, the effectiveness of leadership styles like that in transformational leadership styles are considered influential part in producing quality teachers' routines. Due to this significance, it has established significant attention mostly in the western world, starting the first century and continuing until the present. The study of [3] stated that to be an outstanding leader it involves a process that molds and transform an individual. In addition, leaders that transform includes the capability to influence people to progress, to transforms and to be led. It covers evaluating teachers' motivations, sustaining their necessities and treasuring them.

Tools in technology has outmoded the traditional education system, technological tools has already been assumed to bring educational transformation. Teachers and administrators utilized ICT in the classroom as a form of educational reform. The Commission on Higher Education, contributed to information literacy by supporting comprehensive education programs as a foundation for ICT-enabled classrooms, teaching and learning and interactive centered experiences, and culture of research [4]. Cost-efficient support to teachers provide assistance to education is necessary to broaden access to educate.

The research productivity of teachers are areas that needs to be further improved. The positive effect of ICT in the research were determine through several literature and studies conducted.

In conducting research, it was determined that participants used Information and Communications Technology and determine any inner and exterior weaknesses in the operational utilization of Information and Communications Technology in conducting research. Despite the huge governmental burden to escalate ICT integration, most conveyed obstruction due to the deficiency of Information and

Communications Technology tools, funding provided by the national government, academe and the surrounding community.

In managing the higher education researcher the responsible agency is the National Higher Education Research Agenda (NHERA) that serves as a guide in education in the Philippines. The Commission on Higher Education (CHED) enhance research in the Philippines by setting a national policy in all Higher Education Institutions among the three of its primary function is research as required by CHED. For center of excellence, institutional quality, and opening of graduate programs, autonomous/deregulated status, university status the criterion in research productivity is also used [5].

The significant objective is to push the higher education to develop a level of pool of individual that is trainable, matured, and can compete worldwide.

It is therefore the intention of this study to assess the transformational leadership behaviors and ICT integration on the research productivity of faculty members in Bulacan State University campuses.

2. PROPOSED WORK

This study utilized descriptive correlation type of research it focuses with the independent variable and correlating them with quantitative dependent variables. The study also attempted in determining the effects of leadership behaviors of heads and ICT integration of faculty members on the research productivity profile of five Bulacan State University campuses. Questionnaires on transformational leadership behaviors, ICT integration of faculty members, and faculty research productivity were used as primary data gathering tools. This study is similar with the methods used by the study of [11], [12] and [13].

2.1 Respondents of the Study

The study was evaluated by selected teachers and heads of Bulacan State University Campuses for school year 2016-2017. Table 1 shows the distribution of teachers and heads of BSU.

Table 1: Bulacan State University Teachers and Heads

BSU Campuses	Respondents	
	Teachers	Heads
BSU-Malolos	347	14
BSU-Meneses	14	1
BSU-Hagonoy	4	1
BSU-Bustos Main	37	1
BSU-Sarmiento	16	1
Total	418	18

The data in Table 1 shows that all regular full time teachers (418) and school heads (18) were the main respondents of the study.

These teachers and school heads came from the following Campuses namely Malolos campus (347;14), Meneses campus (14;1), Hagonoy campus (4;1), Bustos Main (37;1), and Sarmiento campus (16;1), respectively.

2.2 Instrument of the Study

This study utilized three standardized instruments on principals’ transformational leadership behaviors, ICT integration, and faculty members’ research productivity. The first instrument on transformational leadership is highly reliable as evidenced by the Cronbach’s alpha of .91. The second instrument on ICT integration was tested by [6] for its validity and reliability. Meanwhile, the questionnaire on research productivity was from the study of [7].

Likewise, the instrument on transformational leadership behavior assessed the school heads’ skills in terms of their nature of school leadership, holding high performance expectations, modeling behavior, providing individualized support, providing intellectual stimulation, and strengthening school culture.

Faculty members’ ICT integration was appraised in terms of their ability to use software resources and hardware resources. Research efficiency profile of faculty was gauged by their research output, publication, citation, and patent. Documentary analysis was likewise utilized. The instrument on transformational leadership behavior was pilot tested to determine its culture sensitivity in the Philippine setting.

2.3 Data Processing and Statistical Treatment

The collected data were organized and treated using Statistical Packages for Social Sciences (SPSS). In order to analyze and interpret the data gathered, the following statistical measures were used:

Table 2: Five Point Likert Scale

Rating Scale	Range	Transformational Leadership Behavior	ICT Integration of Teachers
5	4.50-5.00	Very High	Very Great Extent
4	3.50-4.49	High	Great Extent
3	2.50-3.49	Average	Moderate Extent
2	1.50-2.49	Low	Least Extent
1	1.00-1.49	Very Low	None at all

The following were quantified according to the following:

1. School heads' transformational leadership behavior and ICT integration were quantified using the five point Likert-scale presented in table 2.
2. The research efficiency of faculty was presented in terms of frequency counts and percentage procedures.
3. The effects of leadership behaviors in transformation and ICT integration parallel to research productivity were quantified using correlation and regression analysis.

3. RESEARCH RESULTS

3.1 Transformational Leadership Behavior of School Heads

In general, the transformational leadership behavior of BSU school head is high especially in terms of nature of leadership (3.80), high expectations on performance (3.89), demonstrating behavior (3.52), and providing individualized support (4.26). Average transformational leadership behavior was recorded in providing intellectual stimulation (3.43) and strengthening school culture (3.73).

The school heads' "high" nature of school leadership was evident when they develop a broadly mutual vision for the school (3.80), excite teachers with visions of what to accomplish (4.43), give the teachers a sense of complete determination (3.23), communicate school mission to all stakeholders (3.93), and regularly inspire the teachers to assess growth toward achieving school goals (3.86).

School heads have great expectations from the teachers (4.07) and students (4.43), as well expectations to become effective innovators in the school community (3.67). For modeling behavior, school heads are also open and genuine in dealing with teachers and students (4.42). They likewise provide individualized support by providing means to support teachers' professional growth and development (4.10), taking teachers' opinion (4.73), and encouraging to try new practices (4.82). Provision of intellectual stimulation was likewise exemplified when school heads encourage teachers to contemplate on their duties and responsibilities (3.63) and encourage teachers to assess practices and improve them as needed (3.63).

Along with strengthening school culture, the school heads' transformational leadership behavior was evident in showing respect by treating the teachers as professionals (3.92), encouraging cooperation for executing new programs and practices (3.87), distributing leadership largely among the staff (3.77), ensuring teachers have sufficient participation in decision making associated to programs and instructions (3.78), and providing suitable level of independence in decision making (3.53).

On the other hand, providing intellectual stimulation was only average as shown when they encourage the teachers to follow their own objectives for professional learning and facilitate opportunities for staff to acquire from each other. This means that heads of the school may need to be pro-active in developing policies and programs that will further improve the professional development of school teachers such as pursuing graduate studies, attending trainings and seminars, research skills development, and the like. Highly satisfactory' leaders are strong, skilled, and dedicated, and responsible. The teachers mirror the school's goals and guidelines in their work; they understand the school's objectives and their role in achieving them.

The school observed faculty performance and point-out weaknesses. Meanwhile, 'poor' leadership is cluttered, overwhelmed or incompetent. The school lacks a sense of direction. Senior teachers are worried with daily responsibilities and instances and find it hard to prioritize the most essential issues and concentrate their efforts accordingly. Leaders center their strength to long term goals, values, and development. They inspire subordinates to follow the vision and achieve it. Change is implemented in the organization. The subordinate trust, admire and respect the leader and they feel motivated to do more.

3.2 Faculty Members' Integration of Information and Communications Technology

The following information presented the faculty members' utilization of information and communications technology in terms of software and hardware resources. Although teachers were rated satisfactorily in their computer/ICT skills, it was found out that utilization of software and hardware resources were only to a moderate extent and least extent, respectively.

Moderate degree of software utilization was noted in the following resources namely word processors, databases, computer-aided instructions, web browser, electronic mail, newsgroups, and instructional films. Chats and electronic encyclopaedias were utilized to a least extent.

Numerous hardware resources were not at all utilized. The findings suggest that although teachers are ICT skilled, it is vital that schools provide adequate IT infrastructure as a form of academic/instructional support to teachers in innovating the classroom environment and producing quality researches.

3.3 Research Productivity of Faculty Members

According to [8], the trifocal effort of the teacher in higher education institution consists of instruction, research, and community extension. The University thrust is expected to operate in relation to the traditional pillars. The teachers of the University are expected to become educators, researchers, and service-oriented professionals. In 2003, Bernardo found

out that only 15 out of 223 HEI’s comply the requirements for the graduate-capable HEI category, and only two HEI’s met the criteria for research university classifications. This goes to show that majority of HEI’s are teaching institutions. The Commission on Higher Education (CHED) constantly pushing for a robust research coordination among the HEI’s. With this research productivity, the Bulacan State University campuses were assessed and the data gathered are summarized in Table 3.

In this study, research productivity was examined by the number of scientific papers produced: journals, citations, and patents. From the data in Table 3 it may be gleaned that only 101 out of 1,254 or 8.05 percent of completed researches were produced at Bulacan State University Malolos campus from school year 2014-2016. There were also 22 research papers that either published in national or internationally peer-reviewed journals. However, no citations and patents were recorded.

Meanwhile, BSU Bustos campus produced three completed researches and published the same in an international journal. No citations and patents were also produced. On the other hand, BSU Meneses campus presented only two completed research papers and no records of publications, citations, and patents. Both BSU Hagonoy and Sarmiento campuses were not able to involve their faculty members in accomplishing completed researches, publications, citations, and patents.

Table 3: Three-year Research Productivity of Full-time Faculty Members (2014-2016)

Indicators	Malolos	Bustos	Meneses	Hagonoy	Sarmiento
Completed Research	101	3	2	0	0
For Publication	22	3	0	0	0
Citation	0	0	0	0	0
Patents	0	0	0	0	0

The data in Table 3 suggested that strengthening the research culture at Bulacan State University is imperative because of the main functions of a higher education institution. The [5] is one of the primary functions of a teacher is research. They lead in the conduct of policy-oriented, locally responsive, technology-directed and innovative researches that are discipline-based, and globally competitive. In terms of improving the research the study shows that there is so much that can be sought after in the research productivity of a teacher.

The institutions may inspire the faculty to plan and there should be intensive trainings and develop a significant proposals for research as defined under the CHED’s priority research agenda thru Grants-in-Aid (GIA) or commissioned research grants. In order to encourage and improve the

culture of research in HEI’s; conduct training and grants to qualified faculty that really respond to national development needs as stated in the Medium-Term Development of Philippine Higher Education Institutions MTDPHE (2005).

3.4 School Heads’ Effect in Transformational Leadership Behavior on Teacher’s Research Efficiency

To determine the school heads’ degree of influence in transformational leadership behavior to teachers’ research output, the regression analysis on data were applied. Outcomes on regression analysis as presented in Table 4 revealed that the school heads’ transformational leadership behavior in terms of holding high performance expectations and providing intellectual stimulation produced B coefficients of 3.924 and 9.203 with correlated probability fewer than 0.5 set at significance level. The results indicated that every element rise in holding high performance expectations and providing intellectual stimulation could generate a .356 and .674 increases in faculty members’ research productivity. The obtained Beta coefficients of .356 and .674 indicate that holding high performance expectations and providing intellectual stimulation contribute almost the same significant effects in the research productivity of faculty members. The factors “nature of school leadership”, “modeling behavior”, “providing individual support”, and “strengthening school culture” also contribute to faculty members’ research productivity but not to a significant extent. The obtained F-ration of 10.31 which was found significant at .05 alpha indicates that school heads’ transformational leadership behavior formed a very significant set of predictors for the research productivity of faculty members at Bulacan State University.

Hence, it may be helpful that school heads of Bulacan State University hold high performance expectations from the faculty members and students and provide intellectual stimulation, as well as expectations to become effective innovators in the school community in order to further improve faculty members’ research productivity.

3.5 ICT Integration Effect in Faculty Members on their Research Productivity

In conducting the study, it was hypothesized that ICT integration of faculty members do not significantly affect their research productivity. To determine the extent of effects of the ICT integration on faculty members’ research productivity, the data were subjected to regression analysis. The best predictor among the independent variable (IV) to the dependent variable (DV) was identified through regression analysis in this study.

Results of the regression as shown in Table 5 revealed that the faculty members’ ICT integration in terms of software and hardware resources produced 0.736 of B coefficients then 0.709 correspondingly with linked probability fewer than 0.5

the set impact level. The outcomes show that for every surge in the part of software and hardware resources integration can create a 0.461 in addition to 0.501 growth in faculty members' research output.

The obtained F-ration of 3.545 with a p-value of .018 which was identified important at 0.05 alpha shows that faculty members' information and communications technology integration made a very important predictors for research productivity.

Table 4: Regression Analysis of School Heads' Transformational Leadership on Faculty Members' Research Productivity

(Constant)	89.616	4.027		22.254	.000
Nature of school leadership	0.361	0.318	0.072	1.136	0.257
Holding high performance expectations	3.924	0.713	0.356	5.503	.000
Modeling behavior	0.561	0.744	0.049	0.755	0.451
Providing individual support	0.665	30.825	0.037	0.735	.463
Providing intellectual stimulation	9.203	69.15	0.674	13.192	.000
Strengthening school culture	0.226	72.093	0.009	0.183	.855

Where: R-squared = 0.129, F = 10.31, p-value = 0.000, alpha =0.05

Indicators	Unstandardized Coefficients		Standardized Coefficient t	t	P-value
	B	S.E	Beta		

The findings of this study revealed that the use of information technology of Higher Education Institution (HEI) produces more industrious studies among faculty members. On the opposing side, this study presented that internet skill is an important factor for research production in terms of quantity and quality. Teacher's confidence in being productive in research was related to teacher abilities in doing research.

Table 5: Regression Analysis of ICT Integration of Faculty Members on their Research Productivity

Variables	Unstandardized Coefficients		Standardized Coefficient	t	P-value
	B	S.E	Beta		
(Constant)	1.209	.318		3.796	.000
Software resources	.736	149	.461	3.091	.003
Hardware resources	.709	.169	.501	2.970	.004

Where: R-squared - 0.624, F=3.545, p-value = 0.000, alpha = 0.05

The Information and Communication Technology support in institution for research work were the most essential factors improving research throughput. Moreover, the study of [10] had established this substantial impact on research production. Research references presented numerous indicators determining institutional and departmental supports for researchers. The institutional online library, budget and computing facility like statistical packages for social sciences (SPSS) and institutional policy are considered the most essential indicators that stimulated teachers to do research.

4. IMPLICATIONS DRAWN FROM THE RESULTS OF THE STUDY

The following are suggestions based on the research findings:

1. School heads play a crucial role in the transformation of teacher's in integrating technology into the curriculum that leads to promoting students' learning. In reality, leaders focus their attention to the needs and desires of their subordinates and support them in achieving their highest potential. Leaders possess solid ideals and principles and standards that motivate individuals to perform in ways that support the organization above their own interest.
2. Information and communications technology or ICT significant tool in promoting research among faculty members. Excellent internet connectivity and online library resources may be vital in envisioning the university to produce scientific researches that are globally comparable.
3. Research productivity of faculty members can be achieved when support from the top management is visible such as but not limited to capacity building or mentoring, budgetary allocation for research, international benchmarking, IT infrastructure, and research laboratory.

5. CONCLUSION

In the light of the outcomes of the study, the following conclusions were drawn:

1. The school heads of the five campuses of Bulacan State University were able to update their leadership as shown by their high transformational leadership behavior.
2. The findings suggest that although faculty members are ICT skilled, it is vital that Bulacan State University provide adequate IT infrastructure with good internet connection as a form of academic/instructional support to faculty members in innovating the classroom environment improving their research productivity.

3. Strengthening the research culture at Bulacan State University is imperative as part of a higher education institution functions and requirement.
4. The school heads' transformational leadership behaviors significantly affect faculty members' research productivity.
5. The faculty members' integration of information and communications technology significantly affect their research productivity.
6. Strengthening research culture of BSU is a major thrust as indicated by the findings of this study.

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