International Journal of Multidisciplinary and Current Research

Research Article

ISSN: 2321-3124
Available at: http://ijmcr.com

Productivity in the Academe: An Inquest towards Teaching Effectiveness

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Accepted 24 May April 2015, Available online 26 May 2015, **Vol.3** (**May/June 2015 issue)**

Abstract

Productivity serves as a parameter on the quality education that an academic institution offers to its students. It is on this premise that the researcher decided to evaluate the teaching effectiveness and productivity of Science teachers in Capiz State University to shed light on the long- debated question of whether performance in one area enhances performance in the other, or so. It is believed that effectiveness and productivity are intertwined, which could lead to the improvement of educational standards as key to improving students' ability to become knowledgeable, productive and responsive individuals. This survey-correlation study was conducted to gather responses from Science teachers, administrators, and randomly selected students from the different campuses of Capiz State University. It was found that there was no significant difference in the teaching effectiveness of science teacher according to the level of their productivity. Furthermore, science teachers were found to be effective at work regardless of their work values. Productivity, work values, and teaching effectiveness were not significantly related to one another.

Keywords: *Teaching, effectiveness, productivity, instruction, education*

1. Introduction

Determining a teacher's productivity is one parameter that gives a glimpse on the quality of instruction an institution provides to its students. Recent research can reveal that productivity plays a considerable impact on student learning. In fact, there is considerable differences in teacher productivity within and among educational institutions (Rockoff, 2004 ; Hanushek, et al., 2005; Rivkin, Hanushek and Kain, 2005; Kane, Rockoff and Staiger, 2006; Aaronson, Barrow and Sander, 2007).

The ultimate principle about teaching effectiveness, as influenced by beliefs about the importance of intrinsic motivation and the overlap of teaching and research, is that faculty members can be productive in all aspects of faculty work (Tierney, 1999). This belief is apparent in promotion and tenure policies where faculty members are required to demonstrate their productivity in teaching and research, with emphasis on classroom performance as well. Productivity is one factor that could determine a teacher's effectiveness in the profession. Productivity, in its simplest essence, is defined as the result of the efforts exerted and the resources utilized (Bernolak, 2009). Productivity per se is a set of tools that measures an individual's effectiveness and competence in their profession. Productivity may differ according to diverse factors, including a person's ability and efforts, the availability of resources, the organization of the work and so on. It has many determinants and must be viewed from many angles to understand it and be able to improve it. Productivity consists of different concepts and measures, including the productivity of how much output a person can produce for a certain period of time with given resources. The better an individual makes use of resources, the higher his productivity will be and the better off he becomes in his career.

The demand for transparency on faculty performance, particularly on productivity, has resonated increasing calls for innovation among faculty in the academe. Educators in the academic discipline are now expected not only to teach, but also to conduct research and also perform administrative functions and community outreach services. Working load varies depending on the institution and the discipline but nevertheless, faculties are still facing stiff challenges and obligations at work. Research on faculty productivity reveals that today's academics are challenged by various factors, including long working hours and their struggle to balance the increasing expectations of their work that are becoming "more demanding in terms of efforts as well as time" (Jacobs and Winslow, 2004).

What is unique in a higher education set up is that faculties are committed to scholarly endeavors leading to the production of knowledge and ideas. Probably the most critical indicator of research productivity is publication. Widely regarded as the main source of esteem, Ramsden (1994) posits that this is a requirement for individual promotion, as evidence of institution

excellence, and as a sine qua non for obtaining competitive research funds, publication is central to scholarly activity and recognition.

Fox (1998), meanwhile, points out that research as the main factor for teaching productivity is embedded in the academe. The supposition is that research and teaching are complementary roles and activities-- that each justifies and enhances the other. Thus, in institutional operations; entreaties for public support; the structure of academic appointments; and the day to day lives of faculty members, research and teaching have been regarded to join activities (Bowen and Schuster, 1986). Harry and Goldner (1972) further posit that these serve as the teacher's double reflection of their capability. It could also be that teaching and research are "two aspects of a single task." In this view, the two activities are complementary and grounded in common goals. The strength of these representations is not to be underestimated.

In-depth researches have been conducted to determine the varying concepts of productivity within the organizational structure of schools (Odden & Kelley 2002; Walberg 2003). This is to address pressing management issues, like remuneration and promotion. Furthermore, teacher productivity and teacher effectiveness are sometimes interchanged. Aside from research outputs, productivity is also determined through standardized test scores achieved by students (Goe, Bell & Little 2008). Nevertheless, test scores is not sufficient a metric for teacher effectiveness or productivity.

Productivity and teaching effectiveness are based on the self-efficacy theory of Bandura and on the productivity theory by Taylor. Self-efficacy is defined as the confidence in one's capabilities to organize and execute the courses of action required to produce given attainments. Self-efficacy is defined as a person's belief in his or her capacity to effect behaviors necessary to produce specific performance attainments (Bandura, 1977, 1986, 1997). With this, self-efficacy reflects the teacher's confidence in his or her ability to exert control over motivation, behavior, and teaching environment. Such cognitive self-evaluations impact all manner of teaching experience, which determines why the teacher strives, the amount of energy exerted towards achieving teaching goals, and the likelihood of attaining particular levels of behavioral performance at work. It is inferred that a teacher's behavior is motivated and regulated by self-evaluation reactions to their own actions, and therefore self-directedness partly determines the teacher's behavior inside the classroom. Taylor, meanwhile, states that labor productivity can be improved by scientifically determined management practices. His basic premise, "one best way" to do a job and that should be discovered and put to practice. The belief that the typical teacher can simultaneously achieve high or at least above average levels of productivity as related to teaching effectiveness and work values (Feldman, 1987; Marsh and Hattie, 2002). However, only studies on teaching effectiveness have been explored, which is one measure of quality, but not of productivity. Studies have also been conducted on time allocation and rewards, rather than on specific measures of productivity. With this, the researcher wanted to evaluate the relationship between productivity and teaching effectively. Specifically, this study aimed to look into:

1. The level of productivity of science teachers;
2. The level of teaching effectiveness of science teachers;
3. The significant difference in the teaching effectiveness of science teachers according to the level of their productivity;

Methodology

The study utilized the survey-correlational method of research involving collection of data in order to test the hypothesis or the subject of the study which determines and reports the way things are. Thirty-five Science teachers, 24 administrators, 375 first year students enrolled in the nine campuses of Capiz State University for SY 2014-2015 in any Science subjects were the respondents of this study. The required sample size of students was computed while the student participants were determined using the Fish Bowl Method. Their names were rolled and placed in a bowl and drawn. The names drawn are automatically the participants of the study. The data for teaching effectiveness were gathered using the instrument used by Philippine Association Of State Universities and Colleges (PASUC) and was adopted by Capiz State University in evaluating their teachers. The instrument measured the teaching effectiveness of science teachers according to commitment, knowledge of subject, teaching independent learning, and management learning using the five-point Likert Scale. The descriptive interpretation of mean score is indicated below.

Table 1 Interpretation of mean score

Scale	Description
4.21 – 5.00	Outstanding
3.41 – 4.20	Very Satisfactory
2.61 – 3.40	Satisfactory
1.81 – 2.60	Fair
1.00 – 1.80	Unsatisfactory

The data on productivity of science teachers were gathered using the result in the National Budget Circular(NBC) 461 6th Cycle based on the Common Criteria for Evaluation (CCE) of faculty with three major components namely: educational qualification (85

points); Experience and professional services (25 points); professional development achievement and honors (90 maximum points), for total of 200 maximum points.
The distribution and description is shown below.

Table 2 The distribution and description

Distribution	Description
195 – 200	Very High
159 – 194	High
124 – 158	Moderately High
88 – 123	Low
65 – 87	Very Low

Results and Discussions

Level of Productivity of Science Teachers

Science teachers were found to have "moderately high" productivity with a mean of 155.46. Majority was just in the early years of their teaching profession which affected their professional development. These findings corroborate to the study of Durana (2006), which posited that the Science and Mathematics instructors had a moderate level of research productivity when taken as a whole. Furthermore, the results implied that not all of the science teachers are master's and doctor's degree holders, and are still undergoing graduate studies. In the same manner, not all have scholarly works like innovations, creative works, researches, publications and production of instructional materials, community outreach or extension, and expert services and trainings in their career.

Table 3 Level of Productivity of Science Teachers in Terms of Educational Qualification, Experience and Length of Service and Achievement and Honors

Productivity	N	Mean	SD	Description
Entire Group	35	155.46	29.19	Moderately High
Educational Qualification	35	74.94	10.17	High
Experience and Length of Service	35	18.64	6.43	High
Professional Development Achievement and Honors	35	61.87	17.02	High

Science teachers were found to be "very highly" effective in teaching with a mean of 4.48. With this, it is inferred that science teachers are more effective in the knowledge of subject, management learning and teaching for independent learning. Furthermore, the use of information technology and students' exposure to these tools inside the classroom to enhance learning is considered a helpful factor. The researcher's contention is confirmed by Elmore (2006) who posited that to improve students' learning, instructional facilities of teachers have to be modified depending on students' needs. Teaching effectiveness is also shaped by a teacher's personality traits, which in turn affect a teacher's performance (Jacob and Lefgreen, 2005).

Table 4 Level of Teaching Effectiveness of Science Teachers in terms of Commitment, Knowledge of Subject, Teaching for Independent Learning and Management Learning

Teaching Effectiveness	N	Mean	SD	Description
Entire Group	35	4.48	0.41	Very High
Commitment	35	4.47	0.42	Very High
Knowledge of Subject	35	4.5	0.48	Very High
Teaching for Independent Learning	35	4.48	0.48	Very High
Management Learning	35	4.49	0.4	Very High

Differences in Teaching Effectiveness Among Levels of Productivity

No significant difference was evident in the teaching effectiveness of science teachers' among the levels of their productivity. It is inferred that all science teachers regardless of the levels of their productivity are effective. However, teacher's productivity could not be conclusive of their teaching effectiveness. This may be attributed to their priorities which are more on instruction, especially for those on their early years of teaching. This notion contrast that of Neumann's (1992) who contends that there should be a mutually reinforcing, symbiotic relation between teaching and research is what distinguished universities from other research educational institution. Furthermore, the study of Crittenden (2002) considered that one of the defining characteristics of a university is that all academics are expected to be active researchers and active teachers. Fieldman (1987) also found out that professors whose individual research were good enough gained widespread recognition tend to be the best effective teachers. On the other hand, Noser, Manakyan and Tanner (1996) reported weak relationship between research output and teaching effectiveness. However, individual and institutional characteristics seem to explain some differences in research output and teaching evaluation scores. Further, faculty opinions on the research-teaching relationship seem to be influenced by institutional and individual characteristics. The study of Aleamoni and Makonnen (1977) found that there research productivity and academic rank were not related, although colleague ratings were significantly related to academic rank indicating that the reputation of the instructors could be influencing colleague ratings.

Table 5 NOVA of Teaching Effectiveness among Levels of Productivity

Levels of Productivity	Mean	Variance	SS	df	MS	F	Sig
Very High (178.01-200)	4.65	Bet Grps	0.44	4	0.11	0.64	0.64
High (156.01 - 178.00)	4.46	W/ in Grps	5.2	30	0.17		
Moderately High (134.01 - 156.00)	4.46	Total	5.64	34			
Low (112.01 - 134.00)	4.46						
Very Low (95.00-112.00)	4.22						
Total	4.48						
p>0.05 Not significant @ 5% alpha level							

Conclusions

The following conclusions were drawn based on the findings of this study:

1) Faculty members who are not yet full-fledged professors are not yet required to conduct research and other scholarly works, but research is a requisite for those who want to get promoted to professorial levels.
2) Science are reportedly highly effective in teaching as manifested by their expertise in their field of specialization, utilization of interactive strategies and unique instructional materials, promotion of independence in the classroom activities, creation of healthy atmosphere which is conducive for learning, show respect and consideration to students' opinions, and opportunities for maximum student participation.
3) Science teachers are effective in class regardless of the levels of their productivity. Thus, even if science teachers did not pursue advance education or undergo further training, still they are effective in imparting their lessons to their students.
4) Teachers are still highly effective inside the classroom even if they do not have higher educational attainment, experience, professional development, achievements and honors. Furthermore, their effectiveness in class is not dependent on their work values.

Recommendations

Based on the findings and conclusions, the research came up with the following recommendations:

1) The administration should device a system to provide equal opportunities to teachers for them to access on the different activities to speed up their professional growth. They can likewise provide trainings on capability building.
2) Teachers should enhance work values especially those that are not observed and practiced.
3) Encourage those who are new in the service specifically those who have not reach the associate and professorial position to be aggressive in making innovations and designing and producing instructional materials according to the students' need. More experienced teachers should assist and mentor the young ones. The deans and the program chairs should create a pool of experts that would mentor the less experienced ones.
4) The teachers should discharge the quadro-dimensional functions (instruction, extension, research, and production) as mandated by Higher Education Institutions. The administration can spearhead activities so that these functions will be effectively carried out.
5) Teachers should exemplify positive work values for students to emulate and for the administration to recognize.
6) As an institution of higher learning, the compliance of quadro-dimensional functions should be highly discharged and observed.

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