

# Productivity, Work Values, and Teaching Effectiveness of Science Teachers in Capiz State University

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## ABSTRACT

This study was conducted to determine the teaching effectiveness, productivity, and work values of Science teachers in Capiz State University for the School Year 2014-2015 to shed light on the long-debated question of whether performance in one area enhances performance in the other, or so. It is a well-known idea that effectiveness, productivity and work values are interrelated, which could lead to the improvement of educational standards because they help boost students' ability to become knowledgeable, productive and responsive individuals. This survey-correlation study was conducted to a total population of 35 Science teachers, 24 administrators, and 375 randomly selected students from 9 of the 10 campuses of Capiz State University. There is 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, work values

The ultimate tenet about teaching effectiveness, which is 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 codified in promotion and tenure dossiers where faculty members are required to demonstrate their productivity in teaching and research, with emphasis on service as well. Productivity is one factor that could determine a

teacher's effective 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 to measure the effectiveness and competence of teachers in their teaching profession. Bernolak further mentions that productivity may differ due to many factors, such as a person's ability and efforts, the tools available, 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, therefore, consists of a family of concepts and measures. One measure of productivity shows how much a person can produce in a certain period of time with available resources. The better an individual makes use of resources, the higher his productivity will be and the better off he becomes in his career.

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Productivity and work values of teachers are contributory to their teaching effectiveness. Walker (2008) discussed that effective teachers come to class prepared to teach. They possess optimistic attitudes about teaching and about students and set no limits on students and believe everyone can be successful. Furthermore, the most effective teachers are resourceful and inventive in how they teach their classes and they are fair in handling their grading. It is inferred that these characters are contributory to shape students to become learned, committed, dedicated, resourceful and innovative.

Productivity, work values, and teaching effectiveness of teachers are anchored on the Self-efficacy Theory of Bandura and 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.

It is in this premise that the researcher wanted to look into the relationship between teaching effectiveness and how it impacts productivity and work values. Specifically, this study aims to look into:

1. the level of productivity of science teachers;
2. the level of work values of science teachers;
3. the level of teaching effectiveness of science teachers;
4. the significant difference in the teaching effectiveness of science teachers according to the level of their productivity;
5. the significant difference in the teaching effectiveness of science teachers according to the level of their work values;
6. the significant relationships among science teachers' productivity, work values, and teaching effectiveness?

### 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.

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.

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

The data for the Science teachers’ work values were gathered utilizing the instrument of Beluso (1989). The work values were measured in terms of their commitment, cooperation, honesty, perseverance, punctuality and resourcefulness and which was rated using the five-point Likert Scale. The response category, mean score, and description were used as reflected below:

Response	Mean Score	Description
Strongly Agree	4.21-5.00	Very High
Agree	3.41-4.20	High
Uncertain	2.61-3.40	Moderately High
Disagree	1.81-2.60	Low
Strongly Disagree	1.00-1.80	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’ 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 2. 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

### *Level of Work Values of Science Teachers*

The respondents were found to have “very high” work values as reflected by the mean score of 4.42. This implies that science teachers keenly observed the preciseness in going in and out of work. They also revealed their willingness to spend extra or more time to complete their tasks and that they were committed in inspiring and coordinating students’ needs, providing consultation, and inculcating values and right attitude to students in their lessons. They were also found to be highly cooperative, and are not frustrated when there is a need to revise their work, and patient with colleagues and students. Science teachers are also “very highly” resourceful in preparing instructional materials that are not expensive and can be recycled. The outcome of this investigation supports the contention of Usop (2013) and Johnson (2002) that teachers with high work values and positive attitude promotes an environment that creates a healthy and psychological climate, which also reflects of how quality of In like manner, the contention of Johnson (2002) that science teachers’ commitment is an important ingredient of a good teacher. Therefore, teacher’s commitments have considerable impact in their quality, adoptability, attendance, retention, attitudes, and burnouts.

### *Level of Teaching Effectiveness of Science Teachers*

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 3. Level of Work Values of Science Teachers In Terms of Commitment, Cooperative, Honesty, Perseverance, Punctuality and Resourceful**

Work Values	N	Mean	SD	Description
Entire Group	35	4.42	.30	Very High
Commitment	35	4.45	.39	Very High
Cooperative	35	4.39	.51	Very High
Honesty	35	4.61	.40	Very High
Perseverance	35	4.19	.46	High
Punctuality	35	4.68	.40	Very High
Resourceful	35	4.30	.47	Very High

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 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	.41	Very High
Commitment	35	4.47	.42	Very High
Knowledge of Subject	35	4.50	.48	Very High
Teaching for Independent Learning	35	4.48	.48	Very High
Management Learning	35	4.49	.40	Very High

**Table 5. ANOVA 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	.44	4	.11	.64	.64
High (156.01 - 178.00)	4.46	Win Grps	5.20	30	.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							

**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

**Differences in Teaching Effectiveness Among Levels of Work Values**

There is no significant difference in the teaching effectiveness of science teachers among the levels of their work values.

It is inferred that teaching effectiveness is not influenced by the levels of their work values. This means that teachers are still effective even if they do not possess the necessary values toward work. A teacher can still be highly effective despite having low or high work values because majority of teachers are teaching in their field of specialization. This means that the teachers come to school are prepared to teach the lesson. Johnson and Hallgarten (2002) supports this claim. He posited that science teachers' commitment is an important ingredient in effective teaching.

**Table 6. ANOVA of Teaching Effectiveness Among Levels of Work Values**

Work Values	Mean	Variance	SS	df	MS	F	Sig.
Very High (4.21-5.00)	4.47	Bet Grps	.035	1	.035	.208	.651
High (3.41 - 4.20)	4.54	Win Grps	5.607	33	.170		
Total	4.48	Total	5.642	34			
p>0.05 Not significant @ 5% alpha level							

**Relationships among Productivity, Work Values and Teaching Effectiveness**

The data show that productivity ( $r=0.02$ ) and work values ( $0.10$ ,  $p > 0.05$ ), respectively, do not have significant relationship. Productivity is not significantly related to work values of teachers. Thus, science teachers are still effective regardless of the levels of their productivity and work values. Likewise, a teacher could be productive regardless of his work. Osabede (2008) claimed that the productivity, work values and teaching effectiveness function separately with one another after finding out that faculty members with 5-10 years teaching service are more productive in research and publication, compared to faculty members with 25 years' experience and above.

**Table 7. Pearson r of Teaching Effectiveness, Productivity and Work Values**

Variables	r	Sig
Teaching Effectiveness and Productivity	0.20	0.25
Teaching Effectiveness and Work Values	0.10	0.57
Productivity and Work Values	0.05	0.77
p>0.05 Not significant @ 5% alpha level		

**Conclusions**

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

1. Teachers who have not yet attained the professorial level are not mandated to conduct research and other scholarly works.
2. Science teachers showcase the work values of ideal educators as manifested by their punctuality at work, dedication to spend extra time to complete their task, providing consultation, and inculcating values and right attitude to students in their lessons. Their work values also reflect in their resourcefulness in preparing instructional materials that are not expensive and can be recycled.
3. Science teachers display the values of highly effective educators as shown in their expertise in their subject area, use of different teaching strategies and 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.
4. 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.
5. Science teachers' teaching effectiveness cannot be influenced by their values toward work.
6. 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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