Continuing Professional Education, Sociability, and Productivity of Instructors in Private Sectarian Higher Education Institutions in Davao City

Lolito G. Estrera, PhD

estrera@hcdc.edu.ph
Holy Cross of Davao College, Davao City, 8000, Philippines

Abstract

This study explored the formulation of a structural equation model and the relationships between continuing professional education, sociability, and instructor productivity in private sectarian higher education institutions in Davao City. Using a descriptive correlation design with structural equation modeling, data was randomly collected from instructors via surveys. The study assessed productivity, sociability, and education levels using means and standard deviations. Pearson correlation revealed significant links between variables, while hierarchical regression identified key predictors of productivity. The structural equation model found a well-fitting model showing that both continuing professional education and sociability are strong predictors of instructor productivity, demonstrating their direct impact and interrelationship.

Keywords: *Continuing professional education, sociability, productivity, private sectarian HEIs*

1. Introduction

Instructor productivity is vital to maintaining quality education at the tertiary level. Defined as the output per unit of input, productivity in education can be complex. However, it can be measured by factors like continuing professional education (CPE) and sociability. Under Republic Act No. 10912, the Philippine Regulation Commission requires teachers to complete seminars or earn graduate degrees to renew their licenses. CPE aims to enhance teachers' skills and adapt them to the evolving needs of 21st-century students (Chan & Robles, 2016). Instructor productivity is crucial to student success but is hindered by limited professional development, lack of social interaction, insufficient teaching experience, ineffective use of materials, and poor technology integration. While institutions are addressing these issues, efforts remain insufficient to achieve significant results. Intermediate steps are needed to improve productivity, with researchers highlighting room for improvement in teacher training (Archibald, Cogshall, Croft, & Goe, 2011).

Student evaluations play a key role in assessing teacher performance and helping identify strengths and weaknesses (Galeon, 2015). However, these evaluations can cause anxiety and disappointment among faculty, who may question their impact on teaching assessments. This study was conducted to explore additional factors, such as continuing professional education and sociability, that may influence instructor productivity. Online professional development offers benefits like pace control and flexible resource access but poses challenges such as reduced social interaction and motivation (Wynants, S., & Dennis, J., 2018). The study by Appova, A., & Arbaugh, F. (2018), showed that emphasizing the quantity over quality of professional development (PD) requirements discourages teachers from seeking high-quality PD. Additionally, the lack of stipends or resources outside contract hours demotivates teachers and undermines their trust in the district's commitment to their professional growth.

Sociability, on the other hand, is a key factor in teacher well-being and fosters effective teaching and collaboration with colleagues and students. Ideally, schools should encourage teacher engagement, decision-making, and reflection on teaching practices. However, challenges remain, as productivity in education depends on both inputs and outputs. If students are unprepared, it can negatively affect overall productivity (Hanushek & Ettema, 2016).

Despite extensive research on professional development, there is a gap in understanding how continuing professional education, sociability, and productivity interact in private sectarian higher education institutions, especially in localized settings like Davao City. This study aimed to fill this gap by exploring these factors' effects on instructor productivity, offering insights for designing effective, context-specific professional development programs.

Statement of the Problem

This study aimed to assess the relationships and influences among continuing professional education, instructor sociability, and instructor productivity in higher education institutions and derive a structural equation model. Indeed, this sought answers to the following questions:

1. What is the level of continuing professional education of the instructors in terms of:
   1.1 educational advancement;
   1.2 participation during seminars, conferences, and training; and
   1.3 conduct seminars and training?
2. What is the level of the sociability of instructors in terms of:
   2.1 social interaction;
   2.2 organizational norms; and
   2.3 team activity?
3. What is the level of productivity of instructors in terms of:
   3.1 research engagement;
   3.2 student learning;
   3.3 teaching strategies?
4. Is there a significant relationship between continuing professional education and the productivity of instructors?
5. Is there a significant relationship between the sociability and productivity of instructors?
6. What regression models could be derived in predicting instructor productivity using continuing professional education?
7. What regression models could be derived in predicting instructor productivity using instructor sociability?
8. What regression models could be derived in predicting instructor productivity using both continuing professional education and instructor sociability?
9. What structural equation model could be formulated on the productivity of instructors based on their continuing professional education and sociability?

Hypotheses

The following null hypotheses were formulated and tested at a 0.05 level of significance:

$H_0 1$: There is no significant relationship between continuing professional education and productivity.

$H_0 2$: There is no significant relationship between sociability and productivity.

Other null hypotheses were also tested while developing the structural equation model in path analysis for this study.

Theoretical and Conceptual Framework

This study is based on Maslow's (1954) motivation theory, which posits that individuals are driven by a hierarchy of needs, with unmet needs taking precedence. According to Maslow, behavior is influenced more by unsatisfied needs than by satisfied ones. Applying this to education, the theory suggests that teachers' motivation to pursue professional development and improve their skills is crucial for their classroom productivity, as their needs significantly impact their performance.

Figure 1 illustrates the study's conceptual model, with continuing professional education and sociability as independent variables, and instructor productivity as the dependent variable. It depicts latent variables (unmeasured) and their indicators (measured), showing both direct and indirect effects on productivity. The model includes the interrelationships among independent variables and their links to productivity. Ovals represent latent variables, rectangles denote indicators, single-headed arrows indicate direct relationships and double-headed arrows show covariances. Continuing professional education is assessed through educational advancement and participation in

seminars, while sociability is measured by social interaction and team activities. Instructor productivity is evaluated based on research, student learning, and teaching strategies.
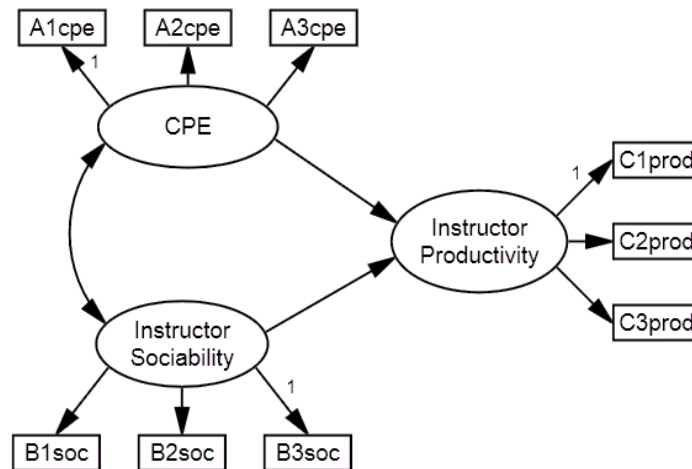

Figure 1. Hypothesized Model. Showing a direct relationship between Continuing Professional Education, Sociability, and Productivity and the interrelationship between continuing professional education and sociability among instructors in private sectarian higher education institutions in Davao City.

Legend:

CPE — Continuing Professional Education
Sociability — Instructor Sociability
Productivity — Instructor Productivity
A1cpe — Educational Advancement
A2cpe — Participation during Seminars, Conferences, and Training
A3cpe — Seminars and Training Conducted
B1soc — Social Interaction
B2soc — Organizational Norms
B3soc — Team Activity
C1prod — Research Engagement
C2prod — Student Learning
C3prod — Teaching Strategies

2. Methodology

The study employed a descriptive-correlational design, suitable for examining existing conditions and relationships (Best & Kahn, 2006; Creswell, 2003). This design is effective for identifying trends and generalizing findings (Neuman, 2000) and assesses the strength of variable associations (Creswell, 2012). It was used to explore the relationships between continuing professional education, sociability, and instructor productivity in private sectarian higher education institutions (HEIs) in Davao City. Respondents were faculty from five randomly selected private sectarian HEIs in Davao City. Simple random sampling ensured equal selection probability (Thompson, 2012). With 172 instructors participating, the sample size was adequate for structural equation modeling (Anderson & Gerbing, 1988). Three survey questionnaires were developed, each with ten items per indicator, assessing continuing professional education, sociability, and instructor productivity using a 5-point Likert scale. These instruments were validated by experts, pilot-tested with 30 non-participating faculty, and found to be reliable. Data analysis utilized Mean, Standard Deviation, Product Moment Correlation, Multiple Linear Regression, Path Analysis, and

Confirmatory Factor Analysis through structural equation modeling to evaluate levels, relationships, and predictors of instructor productivity and to identify the best-fit model.

3. Results and Discussions

Level of Continuing Professional Education

Table 1 shows the levels of continuing professional education among instructors at five private sectarian HEIs in Davao City, covering indicators such as educational advancement, participation in seminars and conferences, and training conducted.

Table 1. Level of Continuing Professional Education of Instructors

Indicators	Mean	SD	Description
Educational Advancement	4.46	0.56	High
Participation during Seminars, Conferences, and Training	4.45	0.55	High
Seminars and Training Conducted	4.15	0.75	High
Overall	**4.35**	**0.52**	**High**

Table 1 shows the overall mean of 4.35, interpreted as high, indicating that instructors strongly value continuing professional education through educational advancement and participation in seminars, conferences, and training. The standard deviation of 0.52 suggests minimal variability in responses, with the least variation in participation during seminars and conferences, and the most variation in seminars and training conducted by instructors.

The above finding affirmed the works of Wildman (2015) that effective professional development is vital to school success and provides ongoing learning activities for educators. Every profession needs professional development opportunities to become more effective and competitive globally.

Level of Instructor Sociability

Depicted in Table 2 the data on instructor sociability, measured by social interaction, organizational norms, and team activity. It includes the mean, standard deviation, and qualitative description for each indicator, as well as the overall mean and standard deviation with their corresponding interpretation.

Table 2. Level of Instructor Sociability

Indicators	Mean	SD	Description
Social Interaction	4.52	0.54	Very High
Organizational Norms	4.56	0.49	Very High
Team Activity	4.53	0.47	Very High
Overall	**4.54**	**0.46**	**Very High**

Table 2 shows an overall mean of 4.54, described as very high, indicating that instructors demonstrate strong sociability, excellent peer relationships, and effectively uphold institutional policies. This suggests that the 172 instructors from five HEIs in Davao City view sociability—particularly social interaction, organizational norms, and team activities—as crucial in the workplace. The standard deviation of 0.46 reflects minimal variability in their responses.

The results align with Price-Mitchell (2015), who states that sociability is essential for social learning and emotional well-being. Effective cooperation fosters connectedness and respect, benefiting not only classroom settings but also leadership in increasingly complex environments, such as the business sector.

Level of Instructor Productivity

Presented in Table 3 is the level of instructor productivity in terms of the three indicators: research engagement, student learning, and teaching strategies.

Table 3. Level of Instructor Productivity

Indicators	Mean	SD	Description
Research Engagement	3.96	0.85	High
Student Learning	4.25	0.62	High
Teaching Strategies	4.39	0.55	High
Overall	**4.20**	**0.59**	**High**

Shown in Table 3 is the instructors' productivity overall mean rating of 4.20, described as high. It shows that the instructors manifested a strong conviction in their professional contribution to the institution. The instructors have a very high level of engagement in research and student learning and use effective teaching strategies. An overall standard deviation of 0.59 means the respondents' responses are moderately consistent.

Significant Relationship Between Continuing Professional Education and Productivity of Instructors
The results on the relationship between Continuing Professional Education and Instructor Productivity are presented in Table 4.

Table 4. Significance of the Relationship between Continuing Professional Education and Instructor Productivity

	Instructor Productivity			
Indicators	r	p-value	Decision	Interpretation
Educational Advancement	0.568	0.000	Reject H_o	Significant moderate correlation
Participation during Seminars, Conferences, and Training	0.559	0.000	Reject H_o	Significant moderate correlation
Seminars and Training Conducted	0.752	0.000	Reject H_o	Significant high correlation
Overall	**0.764**	**0.000**	**Reject H_o**	**Significant high correlation**

Table 4 shows a significant relationship between continuing professional education and instructor productivity, with an overall p-value of 0.000, confirming significance at the 0.05 level. Therefore, the null hypothesis is rejected, indicating that all three indicators are significantly related to the dependent variable.

Significant Relationship between Sociability and Productivity of Instructors
Depicted in Table 5 is the result of the relationship between the Sociability and Instructor Productivity of the 172 respondents of five HEIs in Davao City.

Table 5. Significance of the Relationship between Sociability and Instructor Productivity

	Instructor Productivity			
Indicators	r	p-value	Decision	Interpretation
Social Interaction	0.598	0.000	Reject H_o	Significant moderate correlation
Organizational Norms	0.576	0.000	Reject H_o	Significant moderate correlation
Team Activity	0.604	0.000	Reject H_o	Significant moderate correlation
Overall	**0.641**	**0.000**	**Reject H_o**	**Significant moderate correlation**

Table 5 shows a significant moderate relationship between sociability and instructor productivity, with r = 0.641 and a p-value of 0.000, significant at the 0.05 level. The null hypothesis is rejected. The three sociability indicators—social interaction (r = 0.598), organizational norms (r = 0.576), and team activity (r = 0.604)—also show moderate correlations with productivity. This implies that improvements in sociability lead to corresponding moderate increases in instructor productivity.

These findings align with Andriani, S., Kesumawati, N., & Kristiawan, M. (2018), who identified Transformational leadership and work motivation have a positive and significant impact on teacher performance. Chandrasekar (2011) also highlighted how the work environment influences teachers' morale, productivity, and job performance, both positively and negatively.

Regression Analysis Showing the Regression Model Derived in Predicting Instructor Productivity Using Continuing Professional Education

Table 6. Regression Model Showing the Significant Influence of Continuing Professional Education on Instructor Productivity.

Continuing Professional Education	Unstandardized Coefficients		Standardized Coefficients				Change Statistics		
	B	Std. Error	Beta	t	Sig.	R	R square	R square change	Sig. F change
Constant	0.722	0.249		2.893	0.004				
Educational Advancement	0.092	0.072	0.087	1.285	0.201	0.568	0.323	0.323	0.000
Participation during Seminars, Conferences, and Training	0.247	0.068	0.228	3.607	0.000	0.619	0.383	0.060	0.000
Seminars and Training Conducted	0.475	0.045	0.600	10.51	0.000	0.792	0.628	0.245	0.000

F-ratio = 94.451, p-value = 0.000

Regression Model: **(PROD)** = 0.092**(EA)** + 0.247**(PSCT)** + 0.475**(STC)** + 0.722

Where:

(PROD)	-	Instructor Productivity
(E.A.)	-	Educational Advancement
(PSCT)	-	Participation during Seminars, Conferences and Training
(STC)	-	Seminars and Training Conducted

Table 6 presents the regression analysis showing the influence of each continuing professional education indicator on instructor productivity. Educational advancement (Beta = 0.087, p = 0.201) does not significantly predict productivity. However, participation in seminars, conferences, and training (Beta = 0.228, p = 0.000) and seminars and training conducted (Beta = 0.600, p = 0.000) are significant predictors. When all three indicators are combined, they significantly influence instructor productivity. The highest t-value is for seminars and training conducted (t = 10.51), indicating strong evidence against the null hypothesis.

Regression Analysis Showing the Regression Model Derived in Predicting Instructor Productivity Using Instructor Sociability

Table 7 presents the results of the multiple linear regression analysis, highlighting the significant influence of predictors of instructor sociability on instructor productivity.

Table 7. Regression Model Showing the Significant Influence of Instructor Sociability on Instructor Productivity.

Instructor Sociability	Unstandardized Coefficients		Standardized Coefficients				Change Statistics		
	B	Std. Error	Beta	t	Sig.	R	R square	R square change	Sig. F change
Constant	0.500	0.352		1.421	0.157				
Social Interaction	0.275	0.123	0.251	2.242	0.026	0.598	0.358	0.359	0.000
Organizational Norms	0.259	0.118	0.215	2.194	0.030	0.631	0.398	0.040	0.001
Team Activity	0.282	0.152	0.226	1.858	0.065	0.641	0.410	0.012	0.065

F–Ratio = 38.982 p-value = 0.000

The Regression Model:

$$(\textbf{PROD}) = 0.275(\textbf{SI}) + 0.259(\textbf{ON}) + 0.282(\textbf{TA}) + 0.500$$

Where:
(PROD)	-	Instructor Productivity
(S.I.)	-	Social Interaction
(ON)	-	Organizational Norms
(T.A.)	-	Team Activity

Table 7 presents the regression analysis showing how predictor indicators influence instructor productivity. Social interaction (Beta = 0.251, p = 0.026) and organizational norms (Beta = 0.215, p = 0.030) are significant predictors, while team activity (Beta = 0.226, p = 0.065) is not. The model, with an F-value of 38.982 and a p-value of 0.000, indicates that instructor sociability significantly impacts productivity. The R² value of 0.358 for social interaction increases to 0.398 with the addition of organizational norms, reflecting a significant 4.0% additional variance explained.

The findings that sociability affects instructor productivity align with Hurst et al. (2013), who argue that fostering social interaction among teachers enhances problem-solving and learning through peer discussions. Lu and Chang (2015) note that strong interpersonal networks improve performance by facilitating access to information and technology. Blace et al. (2014) suggest that trust and cooperation within organizations lead to better resource sharing and goal achievement.

Regression Analysis Showing the Extent of Influence of Both Independent Variables on Instructor Productivity
Table 8 presents the regression analysis of how continuing professional education and instructor sociability influence productivity. Both independent variables significantly affect productivity. Continuing professional education has the highest Beta value of 0.621 and a p-value of 0.000, indicating its strongest influence. Instructor sociability has a Beta of 0.204 and a p-value of 0.003. Both predictors are significant at the 0.05 level.

Table 8. The Regression Model Shows the Significant Influence of both Independent Variables on Instructor Productivity.

Independent Variables	Unstandardized Coefficients		Standardized Coefficients			Change Statistics			
	B	Std. Error	Beta	t	Sig.	R	R square	R square change	Sig. F change
Constant	-0.073	0.288		-0.254	0.800				
Continuing Professional Education	0.711	0.078	0.621	9.124	0.000	0.764	0.584	0.584	0.000
Instructor Sociability	0.260	0.087	0.204	2.995	0.003	0.778	0.605	0.021	0.003

F-ratio = 129.569, p-value = 0.000

The Regression Model:

$$(\textbf{PROD}) = 0.711(\textbf{CPE}) + 0.260(\textbf{IS}) - 0.073$$

Where:
(PROD)	- Instructor Productivity
(CPE)	- Continuing Professional Education
(I.S.)	- Instructor Sociability

The regression model is significant, with an F-value of 129.569 and a p-value of 0.000. Continuing professional education and instructor sociability significantly influence instructor productivity, affecting performance indicators like research engagement, student learning, and teaching strategies. Continuing professional education accounts for 58.4% of the variance in productivity (R² = 0.584), while instructor sociability adds 2.1% (R² change = 0.021, p = 0.003), bringing the total to 60.5%. Thus, both variables significantly predict instructor productivity.

Walker (2010) noted that the main challenge in teacher professional development is helping instructors continuously improve their teaching strategies and understanding of the learning process. Results indicated align with

the study of Makopoulou, K., Neville, R. D., Ntoumanis, N., & Thomas, G. (2021) that short-course continuing professional development (CPD) boosts teachers' and teaching assistants' self-efficacy in the short term. However, long-term benefits were influenced by gender, age, experience, pre-course efficacy beliefs, and perceptions of course quality.

The Best Fit Structural Equation Model

Establishing a structural model in structural equation modeling is both crucial and challenging, involving the analysis of variable interrelationships. The study tested a hypothesized model to find the best fit for instructor productivity, which includes a measurement model (showing how factors load on latent constructs) and a structural model (defining relationships among latent variables).

Figure 2 presents the best-fit model, revealing a direct relationship between continuing professional education, instructor sociability, and instructor productivity. Instructor sociability significantly impacts productivity (Beta = 0.75, $p < 0.05$), while continuing professional education has an insignificant effect (Beta = 0.23, $p > 0.05$). The model also shows a significant interrelationship between continuing professional education and instructor sociability (Beta = 0.16, $p < 0.05$).

The findings suggest that instructor sociability positively affects productivity through social interaction, organizational norms, and team activities, whereas continuing professional education's direct impact on productivity is not significant. The model highlights both the direct and interrelated effects of these variables on instructor productivity.
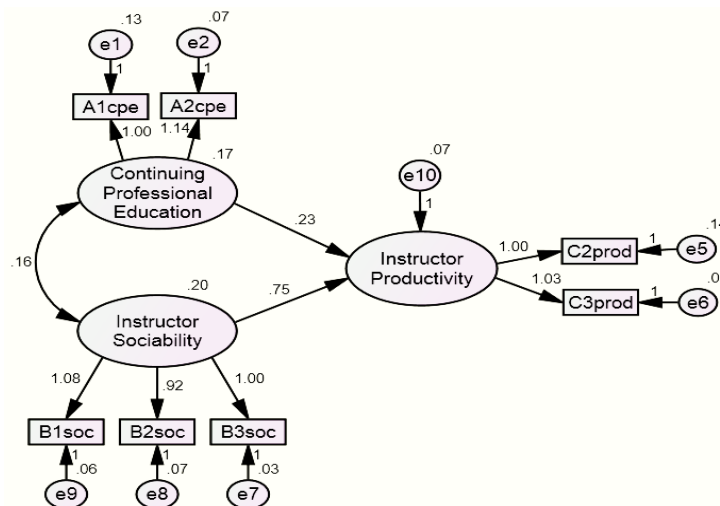

Figure 2. Best Fit Structural Equation Model Showing the Direct Causal Link of Continuing Professional Education and Instructor Sociability towards Instructor Productivity and Interrelationship between Continuing Professional Education and Instructor Sociability

Legend:
Continuing Professional Education - Independent Variable
Instructor Sociability - Independent Variable
Instructor Productivity - Dependent Variable
A1cpe - Educational Advancement
A2cpe - Participation during Seminars, Conferences, and Training
B1soc - Social Interaction
B2soc - Organizational Norms
B3soc - Team Activity
C2prod - Student Learning
C3prod - Teaching Strategies
e - Error

Structural equation modeling quantified the mediating effects of e-learning on professional growth. The expanded model effectively predicted continuance intention, showing that usefulness and social presence are key factors in teachers' decision to continue using e-learning for professional development. Goodness-of-fit indices confirm the model's suitability: CMIN/DF = 1.650 (below 2 or 3), P-Value = 0.078 (greater than 0.05), NFI = 0.980, TLI = 0.985, CFI = 0.992 (all above 0.95), RMSEA = 0.062 (below 0.08), and P-CLOSE = 0.311 (greater than 0.05). These values indicate a well-fitting model. The results suggest that continuing professional education and instructor sociability both directly influence instructor productivity, with a significant interrelationship between the two.

According to Smith, J. A., & Sivo, S. A. (2012), Structural equation modeling revealed that the expanded model effectively predicts teachers' intent to continue using e-learning for professional development. Perceived ease of use, usefulness, and social presence were significant factors influencing this intent. In the study of Asmarani, A., Sukarno, S., & El Widdah, M. (2021), the results revealed a significant positive relationship between professional competence and teacher productivity, confirming the study's aim to examine this connection.

4. Conclusion

The study finds that HEI instructors strongly desire continuing professional education through advancement, seminars, and training. They are highly acceptable among peers, adhering to institutional policies and valuing sociability, which enhances workplace interactions and team dynamics. Instructors show high productivity and commitment, engaging in research and innovative teaching strategies. There are significant positive relationships between continuing professional education, sociability, and productivity, highlighting their roles as predictors of productivity.

The structural model indicates that continuing professional education and sociability directly influence productivity, reflecting Maslow's (1954) theory, which emphasizes the importance of self-fulfillment and social needs in motivating individuals. Challenges include limited access to professional development and the need for improved research engagement. Addressing these issues and leveraging research findings are key to boosting instructor productivity and enhancing student learning.

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