A STRUCTURAL Model in Creativity and Innovation: An Explanatory Sequential DESIGN

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ABSTRACT

This study examines the impact of academic freedom, organizational commitment, and work engagement on creativity and innovation among local college teachers in Region XI (Davao Region), Philippines. Using an explanatory sequential mixed-method design, quantitative data from participants were analyzed through Structural Equation Modeling (SEM), followed by qualitative insights from participants using thematic analysis of interviews and focus groups. Quantitative findings indicated that academic freedom and work engagement indirectly influence creativity and innovation through organizational commitment, with significant direct and total effects observed. Qualitative findings supported these results, highlighting academic freedom's role in fostering autonomy and reducing fear, while work engagement promotes growth and creativity. Challenges such as heavy workloads and limited autonomy were identified in less supportive contexts. Integrated data revealed that fostering trust, collaboration, and autonomy enhances teaching excellence and innovation. Educational leaders are encouraged to address barriers, provide organizational support, and empower educators to explore creative and professional growth opportunities.

KEYWORDS: *Educational Leadership, academic freedom, creativity, innovation, organizational commitment, work engagement, explanatory sequential design, structural equation modeling, Philippines*

INTRODUCTION

Creativity and innovation have become central to addressing global challenges and driving societal progress, particularly in the context of education. In a rapidly changing world, the ability to think creatively and innovate is crucial to solving complex problems across industries, economies, and social sectors.

Creativity is often defined as the ability to produce novel and valuable ideas, while innovation refers to the process of translating these ideas into practical solutions (Amabile, 1996). However, fostering creativity and innovation remains a persistent challenge globally, as many educational systems struggle to create environments that encourage creative thinking and the application of new ideas. Issues such as rigid curricula, excessive standardization, and limited resources hinder the creative capacities of both students and teachers. The 21st-century education landscape demands innovative solutions to meet the needs of a digitally connected, knowledge-based economy, making creativity an essential driver of educational and societal advancement (Ferrari, Cachia, & Punie, 2009).

In Southeast Asia, the need for innovation in education is pressing due to the increasing demand for higher-quality education and the fast-paced development of the global economy. Countries in the region, including the Philippines, face unique challenges such as overcrowded classrooms, insufficient infrastructure, and disparities in educational outcomes across urban and rural areas (Merriman, 2010). These issues often limit the ability of educational institutions to foster creativity and innovation among both teachers and students. In the Philippines, specifically, the education system is grappling with the need to equip educators with the skills and autonomy required to innovate in the classroom. Studies suggest that the lack of academic freedom and institutional support often stifles teachers' creativity and reduces their motivation to engage in innovative teaching practices (Dajero & Quiambao, 2023). Despite these challenges, there are opportunities for reform, particularly through empowering teachers with greater autonomy and creating supportive environments for innovation within schools.

Numerous correlational studies have shown that academic freedom, organizational commitment, and work engagement significantly influence creativity and innovation, particularly in educational contexts. Academic freedom allows educators to express their ideas without fear of retribution, enabling them to experiment with new teaching strategies that can improve student outcomes (Horta et al., 2019). Work engagement, defined as a positive, fulfilling work-related state of mind, has been shown to enhance teachers' commitment to their profession and their ability to innovate in the classroom (Bakker, 2011). Furthermore, organizational commitment, which refers to the emotional attachment that employees feel toward their institution, is a key predictor of both creativity and innovation. Teachers who are committed to their schools are more likely to contribute to innovative practices and collaborate with

colleagues to improve teaching outcomes (Zhang & Ma, 2024). These variables—academic freedom, work engagement, and organizational commitment—are therefore deeply interconnected and play a critical role in shaping an environment where creativity can thrive.

Despite these insights, there remains a significant gap in the literature regarding how these factors interact specifically in the Philippine context, particularly among college educators in Region XI. While many studies have explored the relationship between academic freedom, work engagement, and creativity in other global contexts, there is limited research on how these variables operate within the unique educational and cultural landscape of the Philippines (Dajero & Quiambao, 2023). This study seeks to address this research gap by exploring how academic freedom, organizational commitment, and work engagement influence creativity and innovation among college educators in Region XI. Using an explanatory sequential mixed-methods design, the study aims to provide comprehensive insights into the interplay of these variables within local educational institutions. By contributing to the broader discourse on teacher empowerment and institutional development, the findings of this study will inform policies and practices that enhance the creative and innovative capacities of educators. These insights are expected to guide stakeholders in fostering supportive environments that promote educational excellence and innovation.

METHODS

Research Design

This study employed an explanatory sequential mixed methods design to investigate the influence of academic freedom, organizational commitment, and work engagement on the creativity and innovation of local college teachers in Region XI. The research began with a quantitative phase, where validated survey instruments were used to collect data. Structural Equation Modeling (SEM) was applied to analyze the relationships between variables. The findings from the quantitative analysis informed the qualitative phase, which used in-depth interviews (IDIs) and focus group discussions (FGDs) to provide deeper context and explanations.

Place of Study

The research was conducted in Region XI, Southern Mindanao, Philippines, focusing on local colleges in Davao City, Davao del Norte, Davao Oriental, and Davao de Oro. The region was selected due to its diverse academic

landscape and the researcher's professional engagement in the area. Davao del Sur and Davao Occidental were excluded due to the absence of local colleges.

Research Participants

The quantitative phase involved 214 college teachers selected through stratified random sampling, ensuring representativeness across geographic and institutional strata. Inclusion criteria required participants to have at least two years of teaching experience and to voluntarily consent to participate. The qualitative phase engaged 17 participants, with 10 in IDIs and 7 in FGDs, chosen based on their responses in the quantitative phase to ensure diverse perspectives.

Research Instruments

Validated survey instruments were employed to measure academic freedom, organizational commitment, work engagement, and creativity and innovation. These tools underwent reliability testing, achieving Cronbach's alpha values between 0.800 and 0.985. The qualitative phase used a semi-structured interview guide, developed based on quantitative findings and validated by experts in educational leadership.

Data Collection

Quantitative data were collected through surveys distributed electronically and in person, with measures to ensure privacy and anonymity. The qualitative phase utilized IDIs and FGDs conducted via online platforms at convenient times for participants. Informed consent was obtained, and all sessions were recorded with participant approval for transcription and analysis.

Data Analysis

Quantitative data were analyzed using SEM to test the hypothesized relationships among variables and assess model fit. Thematic analysis was applied to qualitative data, identifying patterns and themes from transcripts. The findings from both phases were integrated during the interpretation stage, ensuring a comprehensive understanding of the research objectives.

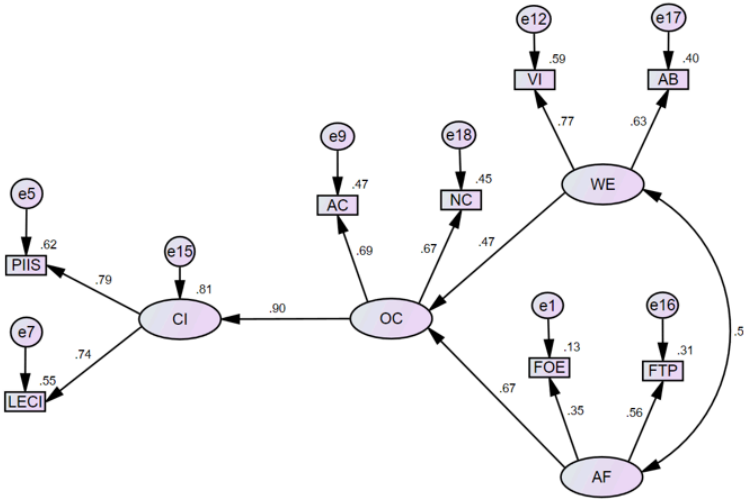
Ethical Statement

The study adhered to the Belmont Report's principles of beneficence, justice, and respect for persons. Informed consent was obtained, and participants' anonymity and data confidentiality were strictly maintained. Ethical clearance was secured from the University of the Immaculate Conception-Research Ethics Committee. Safeguards were implemented to

ensure participant well-being and minimize risks throughout the study.

RESULTS

The Best Fit Model for Creativity and Innovation



Legend: OC = organizational commitment; WE = work engagement; AF = academic freedom; CI = creativity and innovation; LECI = leadership encouragement for creativity and innovation; FTP = freedom of participation in academic discussion; AB = absorption; NC = normative commitment

The model fit indices confirm that Model 3 is the best fit for explaining the relationships among academic freedom, work engagement, organizational commitment, and creativity and innovation. Model 3 meets all acceptable criterion values for goodness-of-fit indices. The CMIN/df value is 1.484, which falls within the acceptable range of less than 3. The Normed Fit Index (NFI) is 0.947, the Tucker-Lewis Index (TLI) is 0.970, and the Comparative Fit Index (CFI) is 0.982, all exceeding the threshold of 0.90. Additionally, the Goodness of Fit Index (GFI) is 0.971, further confirming the model's strong fit. The Root Mean Square Error of Approximation (RMSEA) is 0.048, which is below the acceptable value of 0.08, while the p-close value of 0.491 surpasses the required threshold of 0.05.

These indices highlight that Model 3 effectively illustrates how

academic freedom (AF) and work engagement (WE) influence creativity and innovation (CI) through organizational commitment (OC). Academic freedom (AF) directly impacts organizational commitment (OC) with an estimated degree of 0.67, while work engagement (WE) exerts a direct influence of 0.47. In turn, organizational commitment (OC) significantly drives creativity and innovation (CI) with an estimated degree of 0.90. Academic freedom (AF) is supported by subdimensions such as freedom of participation (FTP) and freedom of expression (FOE), while work engagement (WE) is characterized by vigor (VI), dedication (De), and absorption (AB). These constructs collectively strengthen organizational commitment (OC), which serves as a catalyst for enhancing creativity and innovation (CI).

Causal Links

The standardized path estimates of the best-fit model reveal significant relationships among latent and observed variables. The path between work engagement (WE) and organizational commitment (OC) is significant, with an estimate value of 0.187 and a p-value of 0.004, indicating that work engagement positively predicts organizational commitment. Likewise, academic freedom (AF) significantly predicts organizational commitment, as shown by an estimate value of 0.635 and a p-value of 0.001. This result highlights that a one-unit increase in academic freedom leads to a 0.635 increase in organizational commitment. Similarly, organizational commitment significantly predicts creativity and innovation (CI), with an estimate value of 0.102 and a p-value of 0.000, emphasizing its critical role in enhancing creativity and innovation.

Table 2.1
Standardized Regression Weights

			Estimate	p	Interpretation
OC	<---	WE	.187	.004	Significant
OC	<---	AF	.635	.001	Significant
CI	<---	OC	.102	.000	Significant
LECI	<---	CI	.086	.000	Significant
FTP	<---	AF	.579	.000	Significant
AB	<---	WE	.121	.000	Significant
NC	<---	OC	.104	.000	Significant

Additionally, leadership encouragement for creativity and innovation

(LECI) significantly predicts creativity and innovation, with an estimate value of 0.086 and a p-value of 0.000. The relationship between academic freedom and freedom of participation in academic discussion (FTP) is also significant, with an estimate value of 0.579 and a p-value of 0.000, demonstrating that an increase in academic freedom corresponds to greater participation freedom. Furthermore, work engagement significantly predicts absorption (AB), with an estimate value of 0.121 and a p-value of 0.000. Finally, normative commitment (NC) is significantly predicted by organizational commitment, as reflected by an estimate value of 0.104 and a p-value of 0.000.

Joint Display of Quantitative and Qualitative Results

Table 5
Joint Display of Salient Quantitative and Qualitative Results

Research Area	Quantitative Results	Qualitative Results	Nature of Integration
Causal links of Academic Freedom, Work Engagement, and Organizational Commitment to Creativity and Innovation	Academic Freedom has a total effect of 0.599 on Creativity and Innovation	Participants confirmed the total effect. Based on the IDI and FGD, it could be gathered that the general assertions confirm the total effect. (Refer to Table 4)	Connecting-Confirmation
	Academic Freedom has a direct effect on Organizational Commitment (0.67)	Participants confirmed the direct effect. Based on the IDI and FGD, it could be gathered that the general assertions confirm the direct effect. (Refer to Table 4)	Connecting-Confirmation
	Work Engagement has a total effect	Participants confirmed the total	Connecting-Confirmation

	of 0.420 on Creativity and Innovation	effect. Based on the IDI and FGD, it could be gathered that the general assertions confirm the total effect. (Refer to Table 4)	
	Best Fit Model of Creativity and Innovation Best Fit Model of Creativity and Innovation	Participants confirmed the best fit model. Based on the IDI and FGD, it could be gathered that the general assertions confirm the best fit model. (Refer to Table 4)	Connecting-Expansion
		Participants confirmed the best fit model. Based on the IDI and FGD, it could be gathered that the general assertions confirm the best fit model. (Refer to Table 4)	Connecting-Diverging

The quantitative results revealed that academic freedom has a total effect of 0.599 on creativity and innovation, a finding strongly affirmed by participants' narratives, connecting-confirmation. Teachers described how being entrusted with the freedom to express ideas and design their own teaching strategies fosters a culture of creativity. They shared that this autonomy allows them to explore innovative approaches and develop more dynamic solutions tailored to their students' needs. Participants also noted that academic freedom gives them the confidence to step outside traditional methods, empowering them to experiment with assessments and activities that align with evolving educational demands. These qualitative insights confirmed the total effect found

in the quantitative data, illustrating the profound impact of academic freedom on innovation. Participants highlighted that trust from administrators plays a crucial role in this process, as it strengthens their willingness to embrace new ideas and initiatives.

The quantitative results showed that academic freedom has a direct effect of 0.67 on organizational commitment, a finding that was strongly supported by the qualitative data, connecting-confirmation. Participants shared that the freedom to express their ideas and perform their roles authentically fosters a deep sense of loyalty to their institutions. They described how this trust and autonomy inspire them to exceed expectations, align their efforts with institutional goals, and take pride in their contributions. This alignment with the organization's vision and mission was seen as a key factor in strengthening their commitment.

The quantitative results indicate a total effect of 0.420 on creativity and innovation, a finding that is strongly supported by the qualitative data, connecting-confirmation. Participants share that their engagement with work and professional development directly contributes to their ability to innovate. They explain that when they are fully committed to their roles, whether through pursuing graduate studies or engaging in meaningful classroom activities, their creativity is enhanced. The freedom to explore new teaching strategies and adapt to changing educational needs is highlighted as a critical element in fostering innovation.

The best fit model for creativity and innovation was identified through quantitative analysis and enriched through qualitative data. Participants affirmed how interconnected factors—academic freedom, autonomy, and organizational support—foster environments where creativity thrives. This reflects connecting-expansion, as qualitative data deepens the quantitative findings by offering a richer understanding of these dynamics. However, diverging perspectives also emerged, particularly among teachers with service contracts and those overwhelmed by excessive responsibilities, who experienced reduced commitment and engagement. These differing insights represent connecting-diverging, highlighting the multifaceted and sometimes contradictory factors that influence creativity and innovation in educational settings.

DISCUSSION

The Best Fit Model for Creativity and Innovation

The best-fit model suggests that academic freedom and work engagement influence creativity and innovation through organizational commitment. This finding implies that fostering organizational commitment should be a central focus for leaders in local colleges. By building a culture of trust and mutual respect, leaders can motivate faculty to contribute creatively and collaboratively despite funding and political challenges. Leaders must also advocate for sustained support from local government units to ensure organizational commitment translates into sustained creativity and innovation.

The result confirms the theory of Bakker and van Wingerden's (2021) interpretation of the Job Demands-Resources (JD-R) theory, which suggests that academic freedom and work engagement independently enhance creativity and innovation by serving as job resources. Similarly, Hennessey and Amabile's (2020) Componential Theory of Creativity emphasizes the influence of motivation and environmental factors like freedom and engagement in fostering creativity, but does not explicitly integrate organizational commitment as a linking mechanism. Runco (2020) also emphasizes the structural and procedural factors within institutions as critical for supporting creative outputs, treating engagement and freedom as part of broader institutional strategies. Despite these considerations, the best-fit model is one where academic freedom and work engagement act as covariates that influence creativity and innovation through their relationship with organizational commitment.

The best-fit model aligns with Vroom's (1964) Expectancy Theory, a foundational framework for understanding this dynamic. The theory posits that individuals are motivated to exert effort when they perceive a clear link between their roles and meaningful outcomes. Johnson and Miller (2020) assert that academic freedom enhances organizational commitment by promoting a stronger sense of engagement in institutional goals, thereby driving creativity and innovation. Similarly, Schaufeli et al. (2002) observed that work engagement fosters increased dedication, which leads to innovative practices. Additionally, Liu et al. (2021) emphasize that environments characterized by supportive relationships reinforce the connection between academic freedom, work engagement, and creativity and innovation.

Causal Links

The causal links indicate that academic freedom directly impacts organizational commitment, creativity, and innovation. Local college leaders must safeguard academic freedom to strengthen faculty loyalty and their capacity to generate innovative solutions. Organizational commitment is shown to directly affect creativity and innovation, underscoring the importance of policies and practices that enhance faculty morale and alignment with institutional goals. These findings highlight the need for leaders to balance external demands with internal priorities to maintain organizational stability and foster innovation.

This finding aligns with Amabile (1996), who posits that environments fostering academic freedom enhance creative output by enabling individuals to explore new ideas and approaches. Similarly, the result confirms the finding of Vroom (1964), suggesting that academic freedom motivates individuals to engage in innovative practices by creating a conducive environment where their efforts can lead to meaningful outcomes. Adding to this perspective, Johnson and Miller (2020) emphasize that academic freedom promotes institutional creativity by reducing restrictions on intellectual exploration and encouraging innovative thinking. In addition to its total effect on creativity and innovation, academic freedom has a significant direct effect on organizational commitment. Meyer and Allen (1997) explain this relationship by highlighting that academic freedom fosters affective commitment, allowing individuals to align their professional aspirations with institutional objectives. Johnson and Miller (2020) similarly argue that academic freedom enhances faculty loyalty by promoting accountability and dedication to institutional success. Expanding on this, Marginson (2014) notes that academic freedom strengthens organizational ties by empowering individuals to contribute more meaningfully to their roles.

Joint Display of Quantitative and Qualitative Results

The connecting-confirmation integration revealed a strong alignment between quantitative results and qualitative insights. Participants affirmed the pivotal role of academic freedom in enhancing creativity and innovation. They explained that academic freedom allowed them to explore innovative teaching practices and align their responsibilities with organizational objectives. This observation aligns with Amabile's Componential Theory of Creativity (1996), which underscores the importance of academic freedom in fostering intrinsic motivation. Similarly, it confirms the study of Deci and Ryan's Self-Determination Theory (1985) that academic freedom fulfills core

psychological needs, driving creativity and commitment.

Qualitative findings also highlighted the significant contribution of academic freedom to organizational commitment. Participants noted that the ability to exercise academic freedom strengthened their sense of dedication to their institutions. These insights align with Oldham and Cummings (1996), who found that academic freedom, when supported by the appropriate organizational resources, enhances commitment while optimizing creative productivity.

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