Innovative Leadership, Teacher Professional Development, and Teacher Motivation: The Mediating Role of Teacher Self-Efficacy in Ghanaian Senior High Schools

Rosemary Emefa Ahiadeke*, Nana Afia Amponsah Opoku-Asare, and Moses Kwasi Kusedzi

Department of Educational Innovations in Science and Technology, Ghana Education Service, Regional Directorate, Ho-Ghana

***Coresponding Author**

DOI: https://doi.org/10.47772/IJRISS.2026.100400316

Received: 25 March 2026; Accepted: 30 March 2026; Published: 07 May 2026

ABSTRACT

The motivation of teachers in sub-Saharan African educational settings has been a continuous dilemma, especially where the lack of resources clashes with the need for pedagogical creativity. This study examined the mediating aspect of teacher self-efficacy in the correlation between innovative leadership, teacher professional development (TPD), and teacher motivation among senior high school teachers in Ghana. The study utilised the positivist, explanatory, and cross-sectional survey design underlined by the Self-Determination and Social Cognitive theories. The survey questionnaire was self-designed and administered to a convenience sample of 351 Senior High School teachers in the public and private schools in the Volta Region, Ghana. The partial least squares structural equation modelling (PLS-SEM) was employed to analyse the data in 5,000 bootstrap sub-samples. Data analysis revealed that innovative leadership characterised had a positive, significant influence on teacher self-efficacy (= 0.459, p =0.001) but had no statistically significant direct effect on teacher motivation (=0.121, p=0.064). The effect of teacher professional development was found to have a direct significant impact on teacher motivation (= 0.583, p = 0.001) and teacher self-efficacy (= 0.132, p = 0.001). Teacher self-efficacy was a strong predictor of teacher motivation (0.209, $p < 0.001$) and mediated the relationship between innovative leadership and teacher motivation (0.099, p = 0.020) as well as the TPD - motivation relationship (0.027, p = 0.007). The structural model pointed out a 44.2% variance in teacher motivation. This suggests teacher self-efficacy is an essential psychological process that enables institutional leadership and professional growth to manifest into long-term motivational results for teachers. It is important that educational policymakers and administrators of schools incorporate efficacy-building measures in leadership development and teacher professional development programmes.

Keywords: Innovative leadership; teacher professional development; teacher motivation; teacher self-efficacy; PLS-SEM; Ghana.

INTRODUCTION

Teachers are the final mediators of the quality of the national educational system based on their competencies, motivation, and ability to renew their professionalism continuously (Darling-Hammond, Hyler & Gardner, 2017). Teacher motivation in Ghana and much of sub-Saharan Africa is at a thorny intersection of structural resource shortages, growing classroom pressures, and changing levels of policy expectations (Forson et al., 2021; Ofori, 2021). Although governments have been investing in teacher professional development (TPD) programmes over time, the motivational returns seem unstable, especially when institutional leadership does not match teacher professional desires (Eliasu & Adjeiwaa, 2021; Abeni, Quansah & Dadzie, 2022).

The development of innovative leadership as a new construct in the field of educational administration scholarship has provided a prospective conceptual value in the challenge. Innovative leadership is a clear foreground of a culture of creativity, experimentation, and pedagogical risk taking, unlike the classical models of transformational and transactional leadership (Halimah, Syafruddin & Earlyanti, 2024; Alharbi, 2021). The theorised mechanisms through which leaders can enhance the development of professional confidence and motivational engagement include encouraging teachers to experiment with new instructional strategies, integrate

technology, and participate in research. Nevertheless, there is a lack of empirical pathway in which innovation leadership can lead to motivational results, especially within non-Western educational settings.

According to Bandura (1997), teacher self-efficacy is a belief in the capacity to arrange and to carry out the courses of action needed to achieve specific attainments, which plays a central explanatory role in the pathway. It is also well-established by substantial international evidence that teachers who have stronger efficacy beliefs are more resilient, creative in their pedagogy and more professionally committed (Barni, Danioni & Benevene, 2019; Lazarides & Warner, 2020). However, the manner in which self-efficacy is created and maintained in institutional settings that are typified by leadership styles and the quality of professional development is a knowledge gap in the literature that remains incomplete, especially in the Ghanaian context.

This research fills this gap by testing a model in which teacher self-efficacy mediates the relationships between innovative leadership and teacher motivation on one hand, and teacher professional development and teacher motivation on the other hand. Based on the findings of a sample of 351 senior high school teachers in the Volta Region of Ghana, and utilizing the PLS-SEM, the study accomplishes the following: (1) it offers a PLS-SEM-based empirical test of the impact of innovative leadership on teacher self-efficacy and motivation, in a Ghanaian SHS setting; (2) it tests how Self-Determination Theory (Deci and Ryan, 2000) and Social Cognitive Theory (Bandura, 1997) can be theoretically integrated.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Innovative Leadership in Educational Settings

Innovative leadership is a group of behavioural patterns where school leaders play an active role in promoting new thinking, encouraging implementation of new pedagogical methods, and developing institutional environments that encourage experimentation and knowledge sharing (Alharbi, 2021; Ghodang, 2021). Incorporating transformational and distributed leadership traits, innovative leadership is characterised by a conscious creation of what Halimah et al. (2024) refer to as ‘a dynamic and engaging learning environment, where the pedagogical innovation turns out to be normative and structurally justified’.

In the Ghanaian context, where teacher autonomy has historically been limited by hierarchical leadership traditions (Abonyi & Sofo, 2021), innovative leadership is a significant move towards more empowering institutional cultures. The operationalisation of this construct as it applies to the current study consists of nine dimensions that include encouraging innovative teaching practices, supporting technology integration, facilitating collaboration and knowledge-sharing, and promoting research-based pedagogy.

Teacher Professional Development

Teacher professional development (TPD) is any organised practice that allows teachers to increase the level of their knowledge, skills and pedagogical abilities during training (Desimone, 2009; Darling-Hammond et al., 2017). The features of a high-quality TPD include direct relevance of training content to instructional issues of the teacher, active participation, teamwork, and an adequate period to promote practical development of the skills involved (Fairman et al., 2022). TPD is an important policy driver in Ghana, but multiple obstacles, such as insufficient funding, failure to access technology-enhanced training, and poor alignment between TPD material and classroom realities, have limited its effectiveness (Amemasor, Ghansah & Essel, 2025).

Teacher Motivation: Intrinsic and Extrinsic Dimensions

Teacher motivation is theorised as a multidimensional concept that integrates intrinsic motivation, passion to work professionally, pedagogical satisfaction, and the intrinsic reward of student learning, and extrinsic motivation elements such as the salary, recognition, and career growth (Ryan & Deci, 2020; Schunk & DiBenedetto, 2021). The Self-Determination Theory (Deci & Ryan, 2000) assumes that sustainable motivation requires the satisfaction of three basic psychological needs: competence, autonomy and relatedness. Both intrinsic and extrinsic motivation are suppressed by low payment, lack of promotion, administrative overload, and lack of pedagogical autonomy in the context of the Ghanaian (Forson et al., 2021; Eliasu & Adjeiwaa, 2021).

Teacher Self-Efficacy

Based on the Social Cognitive Theory introduced by Bandura (1997), the concept of teacher self-efficacy implies the set of beliefs teachers have about their ability to adequately cope with instructional issues in relation to students' interests and achieve the desired learning outcomes (Lazarides & Warner, 2020; Barni et al., 2019). In this sense, a high self-efficacy correlates with a stronger instructional creativity, persistence under the circumstances of classroom challenges, and readiness to utilise new teaching methods (Vidergor, 2023). Most importantly, self-efficacy is acquired in four major ways: mastery of experiences, vicarious learning, social persuasion, and physiological states (Bandura, 1997), which are susceptible to the standards of institutional leadership and professional development.

Hypotheses Development

H1: Innovative Leadership and Teacher Motivation

Theoretical discussions in the tradition of transformational leadership imply that leaders who can establish an empowering, visionary atmosphere ought to directly increase the levels of subordinate motivation (Normianti et al., 2019; Ghodang, 2021). Nonetheless, operant pathways can be contingent instead of direct through psychological constructs like self-efficacy. Under the contextual circumstances of Ghana, the direct motivational effect of innovative leadership might be watered down by the lack of resources and disjuncture between the aspirations of the leadership and the realities of the classroom. We, therefore, hypothesise that (*H1) There is a significantly positive direct impact on teacher motivation due to innovative leadership.*

H2: Innovative Leadership and Teacher Self-Efficacy

Leaders who are actively supportive of creativity, technology integration, research, and knowledge sharing develop the mastery experiences and social persuasion conditions named by Bandura (1997) as the primary sources of self-efficacy. Riddel and Zulfikar (2024) affirm that visionary leadership builds teacher confidence, while Keane et al. (2020) show that visionary leaders who endorse the use of technology enhance the instructional self-efficacy of teachers. In this sense, we hypothesise that (*H2) Innovative leadership has a strong and positive impact on teacher self-efficacy.*

H3: Teacher Professional Development and Teacher Motivation

TPD that is systematic, meets the teachers' professional needs, and professional objectives contributes to the sense of professional identity and competence, which directly increases motivation (Purwanti and Octavia, 2022; Ahmed et al., 2021). Desimone (2009) confirms that successful TPD builds the commitment of the professionals in terms of their skills and collaboration. Therefore, *H3: teacher motivation is significantly positively directly related to teacher professional development.*

H4: Teacher Professional Development and Teacher Self-Efficacy

A major origin of mastery experiences, the most effective efficacy-building mechanism by far in Bandura's (1997) view, is sustained, job-embedded professional development inclusive of mentoring, coaching, and reflective practice. High-quality TPD, which is confirmed by Wasserman and Maymon (2017), Thurm and Barzel (2020), and Gummus and Belliba Bas (2023) in a row, enhances the instructional confidence of teachers. In that way, we hypothesise that (*H4) Teacher professional development has a great, positive impact on teacher self-efficacy.*

H5: Teacher Self-Efficacy and Teacher Motivation

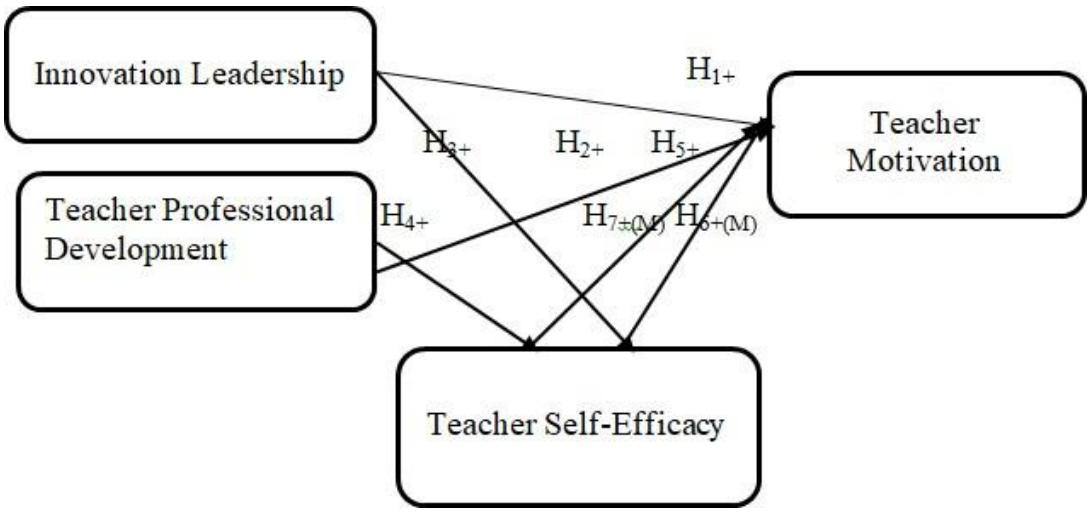
The competence needs of SDT, and the efficacy theory of Bandura intersect on the fact that teachers who believe they can deliver instructional results have a long-term intrinsic drive (Barni et al., 2019; Demir, 2020). In this regard, high self-efficacy is effective in suppressing burnout and professional disengagement (Çelik &

Kahraman, 2018). In this way, we hypothesise that (*H5) Teacher self-efficacy is strongly positively correlated with teacher motivation.*

H6 & H7: Mediating Role of Teacher Self-Efficacy

With the theoretical centrality of self-efficacy as a cognitive-motivational filter, we put forward that mediation between inputs of leadership/TPD and outputs of motivation is theoretically required. Noor et al. (2024) and Ahn and Bowers (2024) show that self-efficacy is the mediator between the leadership-motivation relationship, while Yoon and Goddard (2023) hold that self-efficacy is the mediator between the TPD-motivation relationship. Therefore, we put forward that (H6) *Teacher self-efficacy links the connection between innovative leadership and teacher motivation*. In addition to this, (H7): *Teacher self-efficacy plays an intermediate role between teacher professional development and teacher motivation.*

Figure 1: Conceptual Framework of the Study



As illustrated in Figure 1, the conceptual framework places teacher self-efficacy as the most important mediating variable between the two independent variables of innovative leadership and teacher professional development and teacher motivation, which is the dependent variable. The framework is based on the Self-Determination Theory (Deci & Ryan, 2000) and Social Cognitive Theory (Bandura, 1997), which postulate seven hypothesised pathways.

The theory is that innovative leadership impacts teacher self-efficacy (H2) and teacher motivation (H1), teacher professional development directly impacts self-efficacy (H4) and motivation directly (H3). Furthermore, the framework proposes that teacher self-efficacy, which is defined as classroom management, instructional confidence, and adaptability, predicts teacher motivation (H5) while, more importantly, H6 and H7 embody the indirect mediation effects that innovative leadership and professional development, respectively, generate motivational effects through self-efficacy. This architecture aligns with Bandura's (1997) argument that efficacy beliefs serve as the major cognitive buffer between environmental input and behavioural motivation, whereas SDT describes how competence-building experiences maintain intrinsic engagement in the profession.

METHODOLOGY

Research Philosophy and Design

The research was based on a positivist philosophy (Creswell and Creswell, 2017; Crotty, 1998) that assumes that social phenomena could be studied objectively by means of empirical, hypothetico-deductive approaches. The paradigm concurs with the deductive nature of the study, where hypotheses that were deductively developed based on the theoretical nature were compared with quantitative field data. To establish causal relationships

between the constructs, an explanatory research design was used to find out direct effects and mediation pathways simultaneously in one integrated model (Creswell, 2014).

Population, Sampling, and Sample Size

The target population was all 4,540 public and private senior high school teachers in the Volta region of Ghana (Ghana Education Service, 2020). The convenience sampling method was used (Etikan, Musa & Alkassim, 2016), and the teachers were approached via the institutional gatekeepers, the GES directorate and heads. An initial set of 408 teachers were given a structured questionnaire, which had a 351 or 86% usable response rate, sufficient to fulfil the sample size criterion derived from the Krejcie and Morgan (1970) sample size determination formula based on the population of roughly 4,500 teachers in the Volta Region senior high schools. This is also an adequate sample size for PLS-SEM (Hair et al., 2017).

Measurement Instruments

A structured Likert-scale questionnaire (1 = Strongly Disagree to 5 = Strongly Agree) was used, comprising five sections: (A) demographic information, (B) Innovative Leadership (INL, 9 items), (C) Teacher Professional Development (TPD, 9 items), (D) Teacher Motivation (TMN, 8 items), and (E) Teacher Self-Efficacy (TSE, 7 items). All items were adapted from validated instruments documented in the extant literature. Following PLS-SEM measurement model refinement, 16 indicators were retained across the four constructs.

Analytical Strategy: PLS-SEM

The analysis utilised Partial Least Squares Structural Equation Modelling (PLS-SEM) through SmartPLS 3 (Ringle et al., 2022) as it provides predictive-explanatory goals of the study (Hair et al., 2017; Sarstedt & Ringle, 2017). The ability to process comparatively intricate models with medium sample sizes without multivariate normality is what warrants PLS-SEM as a tool, especially since leptokurtic curves are witnessed in certain TSE indicators (Byrne, 2016). Evaluation was done through a two-step process: (1) reliability and validity testing, (2) testing of hypotheses: structural model evaluation. A 5,000-subsample bootstrapping test with a two-tailed confidence interval of 95 per cent was used to test the hypotheses (Hair Jr. et al., 2017).

RESULTS

Demographic Profile of Respondents

As indicated in Table 1, there was a slight majority of male respondents (54.4%), which is resonant with the gender composition of the workforce in the Volta Region SHSs (GES, 2020). The majority of teachers were between 31 and 40 (61.3) years old, and 44.7% had teaching experience between 6 and 10 years. The sample was almost equal regarding the proportion of public (49.9) to private (50.1) schools, which increased the cross-sector generalisability of results. Most of the respondents (47.9) had a bachelor's degree, which represents the educational status of SHS teachers in Ghana. Table 1 shows the demographic features of the 351 study respondents.

Table 1: Demographic Characteristics of Respondents (N = 351)

Characteristic	**Frequency (n)**	**Percentage (%)**
Gender		
Male	191	54.4
Female	160	45.6
Age Group		

20–30 years	62	17.7
31–40 years	215	61.3
41–50 years	59	16.8
51 years and above	15	4.3
Years of Teaching Experience		
1–5 years	86	24.5
6–10 years	157	44.7
11–15 years	87	24.8
Above 15 years	21	6.0
Type of School		
Public	175	49.9
Private	176	50.1
Highest Educational Qualification		
Diploma	85	24.2
Bachelor's Degree	168	47.9
Master's Degree	60	17.1
PhD	38	10.8
Total	**351**	**100.0**

Source: Field Survey, 2025

Descriptive Statistics

Although the overall mean appears highest in Teacher Self-Efficacy (as shown in Table 2), where teachers in the Volta Region reported strongly positive efficacy beliefs, especially in helping struggling students (TSE7, M = 4.43) and motivating student engagement (TSE5, M = 4.29). Above-midpoint means were also obtained in Innovative Leadership (M = 4.04) and Teacher Professional Development (M = 3.96), which implies overall positive attitudes to school-level leadership innovation and development support. Teacher Motivation showed the least overall score (M = 3.92) with less satisfying items regarding intrinsic motivation (TMN2: M = 3.69; TMN3: M = 3.86), which scored relatively lower, indicating that, at least, surface-level motivation is present, but more in-depth intrinsic engagement could be targeted for improvement (Deci & Ryan, 2000).

On the distributional properties, a majority of indicators had negative skewness, which indicated agreement tendency. Some of the TSE items showed high values of kurtosis (e.g., TSE7 kurtosis = 6.39), which are leptokurtic distributions, but since PLS-SEM is non-parametric and uses bootstrapping to estimate parameters, these values do not pose any threat to the validity of the results (Byrne, 2016; Hair et al., 2017). Table 2 shows the descriptive statistics of all the construct indicators.

Table 2: Descriptive Statistics of Construct Indicators

Item	Description	Mean	SD	Skew	Kurt
	Innovative Leadership (INL) — Overall Mean: 4.04				
INL1	Encourages adoption of innovative teaching methods	3.755	0.885	-1.357	2.314
INL2	Encourages innovative thinking among teachers	4.046	0.768	-0.532	-0.003
INL3	Encourages new teaching method adoption	3.932	0.803	-1.268	2.581
INL4	Supports use of technology in T&L	4.040	0.798	-1.086	2.370
INL8	Encourages research and new pedagogical approaches	4.171	0.788	-1.156	2.655
	Teacher Professional Development (TPD) — Overall Mean: 3.96				
TPD6	Encouraged to participate in professional learning communities	3.986	0.994	-1.229	1.478
TPD7	Training integrates modern teaching technologies	4.048	0.946	-1.252	1.686
TPD8	Sufficient resources for TPD	4.043	0.955	-1.267	1.718
TPD9	PD activities align with teaching needs	3.997	0.991	-1.104	0.973
	Teacher Motivation (TMN) — Overall Mean: 3.92				
TMN1	Motivated to give best effort daily	3.769	1.135	-1.122	0.650
TMN2	Finds joy and satisfaction in teaching	3.687	0.883	-0.191	-0.676
TMN3	Feels valued and appreciated	3.855	0.933	-1.123	1.660
TMN4	Enthusiastic about teaching responsibilities	3.969	0.894	-0.899	0.930
	Teacher Self-Efficacy (TSE) — Overall Mean: 4.20				
TSE5	Can motivate students to take an active role in learning	4.285	0.750	-1.620	4.894
TSE6	Can adapt teaching to different learning environments	4.254	0.740	-1.460	4.487
TSE7	Confident in helping struggling students improve	4.427	0.743	-2.007	6.389

Source: Field Survey, 2025; T&L = Teaching and Learning; PD = Professional Development

Measurement Model Assessment

All retained indicators, except INL8 (0.652) and TMN4 (0.699), had adequate loading (0.708) and were retained due to their theoretical importance and very small effect on composite reliability (Hair et al., 2019). The Cronbach Alpha values of 0.784 (TSE) to 0.853 (TPD), rho A values of 0.793 to 0.871 and Composite Reliability values of 0.873 (TSE) to 0.899 (TPD) all met the threshold of 0.7, and hence, sufficient internal consistency reliability. The AVE values were found to be between 0.631 (INL) and 0.697 (TSE), which is above the 0.5 cut-off on convergent validity, and thus, the convergent validity of all constructs of the drafted study is established

(Fornell & Larcker, 1981). The results of reliability and convergent validity of the retained indicators are reported in Table 3.

Table 3: Reliability and Convergent Validity (Measurement Model Results)

Construct / Item	Factor Loading	t-value	p-value	CA	rho_A	CR	AVE
INL1	0.825	35.468	0.000	0.851	0.861	0.895	0.631
INL2	0.820	41.848	0.000				
INL3	0.801	31.813	0.000				
INL4	0.858	25.166	0.000				
INL8	0.652	8.497	0.000				
TMN1	0.823	47.910	0.000	0.815	0.822	0.879	0.646
TMN2	0.839	44.019	0.000				
TMN3	0.845	36.121	0.000				
TMN4	0.699	17.180	0.000				
TPD6	0.815	26.591	0.000	0.853	0.871	0.899	0.691
TPD7	0.838	36.182	0.000				
TPD8	0.862	39.128	0.000				
TPD9	0.808	36.895	0.000				
TSE5	0.817	12.084	0.000	0.784	0.793	0.873	0.697
TSE6	0.838	38.553	0.000				
TSE7	0.850	22.064	0.000				

Source: SmartPLS 3 Estimates; CA = Cronbach's Alpha; rho_A = Dijkstra-Henseler's rho_A; CR = Composite Reliability; AVE = Average Variance Extracted

Discriminant Validity

Tables 4 and 5 report discriminant validity using the Fornell-Larcker criterion and the HTMT ratio, respectively.

Table 4: Discriminant Validity — Fornell-Larcker Criterion (√AVE on Diagonal)

Construct	INL	TMN	TPD
INL	**0.794***		
TMN	0.191	**0.804***	
TPD	-0.056	0.598	**0.831***
TSE	0.451	0.329	0.106

Source: Field Survey, 2025. *Diagonal values = square root of AVE. Off-diagonal = inter-construct correlations.

Table 5: Discriminant Validity — Heterotrait-Monotrait (HTMT) Ratio

Construct	INL	TMN	TPD
INL	—		
TMN	0.237	—	
TPD	0.147	0.685	—
TSE	0.547	0.402	0.159

Source: Field Survey, 2025. All HTMT values < 0.90 threshold (Hair et al., 2013; Henseler et al., 2015).

Discriminant validity is established using the Fornell-Larcker criterion in Table 4: the square root of all the AVE diagonals is greater than the corresponding inter-construct correlation (Fornell & Larcker, 1981). Table 5 affirms the discriminant validity through the use of the HTMT ratio: all the values are below the conservative 0.90 level suggested by Henseler et al. (2015). The greatest HTMT (TSE0.547) is still far within the acceptable range. All of these findings reinforce the fact that the four constructs are empirically different and thus, the measurement model is valid.

Structural Model Assessment and Hypothesis Testing

Table 6 reports the model's predictive power and relevance, and Table 7 presents the path coefficients for all hypothesised relationships.

Table 6: Structural Model Predictive Summary (R^2 and Q^2)

Endogenous Construct	R^2 (Predictive Power)	Q^2 (Predictive Relevance)
Teacher Motivation (TMN)	0.442 (Moderate)	0.326 (Medium)
Teacher Self-Efficacy (TSE)	0.221 (Weak-Moderate)	0.053 (Small)

Source: SmartPLS 3 Estimates. R^2 benchmarks: >0.25 small, >0.50 moderate, >0.75 large (Hair et al., 2019). Q^2 benchmarks: >0, >0.25 medium, >0.50 large.

Table 7: Structural Model Results — Direct and Indirect Path Coefficients

H	Relationship	β	STD	t-value	p-value	Decision
H1	INL → TMN (Direct)	0.121	0.070	1.855	0.064	Not Supported
H2	INL → TSE (Direct)	0.459	0.082	5.583	0.000***	**Supported**
H3	TPD → TMN (Direct)	0.583	0.040	14.631	0.000***	**Supported**
H4	TPD → TSE (Direct)	0.132	0.040	3.295	0.001**	**Supported**
H5	TSE → TMN (Direct)	0.209	0.059	3.529	0.000***	**Supported**
H6	INL → TSE → TMN (Indirect)	0.099	0.041	2.330	0.020*	**Supported**
H7	TPD → TSE → TMN (Indirect)	0.027	0.010	2.695	0.007**	**Supported**

Source: Field Survey, 2025 (SmartPLS 3, 5,000 bootstrap sub-samples). INL = Innovative Leadership; TPD = Teacher Professional Development; TSE = Teacher Self-Efficacy; TMN = Teacher Motivation. *p < 0.05; **p < 0.01; ***p < 0.001.

Table 6 indicates that the structural model explains 44.2% of the variance in Teacher Motivation ($R^2 = 0.442$) and 22.1% in Teacher Self-Efficacy ($R^2 = 0.221$). The Q^2 value for Teacher Motivation (0.326) reflects medium predictive relevance, while Teacher Self-Efficacy records a small Q^2 (0.053), indicating that the model has greater explanatory traction for motivational outcomes than for self-efficacy. The SRMR value was within an acceptable range, confirming overall model fit (Ringle et al., 2022).

The path coefficient results presented in Table 7 indicate that six of the seven hypotheses were supported. H1 (INL → TMN, $\beta = 0.121$, $p = 0.064$) was not supported, as the direct effect of innovative leadership on teacher motivation failed to reach statistical significance. In contrast, H2 (INL → TSE, $\beta = 0.459$, $p < 0.001$) was strongly supported, confirming that innovative leadership exerts a substantive positive effect on teacher self-efficacy. H3 (TPD → TMN, $\beta = 0.583$, $p < 0.001$) emerged as the strongest direct path in the model, underscoring the central motivational significance of professional development. H4 (TPD → TSE, $\beta = 0.132$, $p = 0.001$), H5 (TSE → TMN, $\beta = 0.209$, $p < 0.001$), H6 (INL → TSE → TMN, $\beta = 0.099$, $p = 0.020$), and H7 (TPD → TSE → TMN, $\beta = 0.027$, $p = 0.007$) were all supported, confirming the mediating role of teacher self-efficacy.

DISCUSSION

The Indirect Motivational Pathway of Innovative Leadership

The fact that the direct relationship between innovative leadership and teacher motivation is not significant (H1: = 0.121, p = 0.064) is a theoretically interesting and contextually significant result. Although some previous studies have either found positive relationships between transformational or innovative leadership and teacher motivation (Normianti et al., 2019; Ghodang, 2021), the current findings indicate that the relationship between the two variables is not direct in the Ghanaian context of SHS. Instead, innovative leadership may seem to be an enabling distal status whose motivational impact is mediated via the proximal process of teacher self-efficacy. This interpretation is theoretically consistent with the Self-Determination Theory (Deci & Ryan, 2000) model, without necessarily eliciting intrinsic motivation. This is specifically evidence since Teacher Motivation has the lowest mean score (M = 3.92) of all constructs in this study. Systemic forces, such as salary restrictions, high pupil-teacher ratios, and administrative pressures, create a motivational drag in the Ghanaian setting that can be watering down the immediate effect of school-level leadership (Forson et al., 2021; Ofori, 2021). The substantial indirect route (H6: $\beta = 0.099$, $p = 0.020$) supports the idea that the motivational effect of innovative leadership is mediated through the construction of teacher self-efficacy, which is a phenomenon that reinforces the social cognitive argument by Bandura (1997) that competence beliefs act as the main cognitive mediator between environmental input and motivation outcome.

Teacher Professional Development as a Direct Motivational Driver

The first effect in the model (H3: TPD → TMN, $\beta = 0.583$, $p < 0.001$) is the strongest direct effect, which proves that teacher professional development is the overpowering proximal predictor of teacher motivation in this sample. This finding resonates with that of Desimone (2009), who states that effective TPD leads to professional identity and commitment, and Ahmed et al. (2021), who, in turn, reveal that skills-based programmes produce more sustainable motivational impacts than credential-based training. This path coefficient (= 0.583) is significantly bigger than that of other similar studies in the West, which may indicate the specific salience of structured capacity-building in a situation where teachers are regularly deprived of resources and lack pedagogical assistance.

The other indirect impact through the effect of self-efficacy (H7: $\beta = 0.027$, $p = 0.007$) indicates that the motivational effect of TPD takes place in two complementary ways: the direct effect of professional identity support and the indirect effect of empowerment through efficacy. This two-channel process has significant design implications for TPD programme design in Ghana (and similar sub-Saharan settings) in that programmes that are best designed to be both skill mastery as well as self-efficacy generating will be more effectively motivating.

Teacher Self-Efficacy as a Critical Psychological Mechanism

The fact that H5 (TSE → TMN, 0.209, p = 0.001) is confirmed aligns with international evidence regarding the motivational importance of efficacy beliefs (Barni et al., 2019; Demir, 2020; Franklin & Harrington, 2019). The competence-experience that is core to the motivational architecture of SDT is manifested by teachers who assume they can manage instruction, differentiate among different learners, and help them grow (Deci & Ryan, 2000). In the Ghanaian setting, where external motivational aids (financial gains, professional growth, administrative assistance) tend to be limited, enhancing the strength of intrinsic efficacy beliefs could be the most economical lever which can be used to promote lasting motivational improvements.

The paths of mediation (H6 and H7) that have been confirmed paint a psychological picture whereby the influence of institutional-level variables (leadership and professional development) is not directly converted to motivational results: it is screened by the self-efficacy construal of teachers. When facing innovative leadership, a teacher with low self-efficacy might find the normative expectation of pedagogical innovation threatening, whereas the same teacher with self-efficacy built up in the context of mastery experiences in TPD will find opportunity-rich innovation initiatives promoted by their leaders (Bandura, 1997; Yoon & Goddard, 2023).

CONCLUSION, IMPLICATIONS, AND LIMITATIONS

Conclusions

The research contributes to the knowledge on how institutional leadership and professional development result in motivational outcomes among teachers in senior high schools in Ghana. The results of the PLS-SEM prove that teacher self-efficacy is a vital psychological mediator, partially mediating the innovative leadership-motivation pathway and complementing the mediating TPD-motivation pathway. The direct impact of innovative leadership on motivation was not significant, and the teacher professional development had the most significant direct impact on motivation. The results are generalizable to the use of SDT and Social Cognitive Theory in the Ghanaian school environment and indicate the theoretical vibrancy of the combination of these paradigms in explaining teacher workforce relationships in sub-Saharan Africa.

Policy and Practical Implications

These findings have several implications for the actions of policymakers in education and the Ghana Education Service. First of all, TPD investment should be prioritised as an organization rather than an enterprise that produces credentials, with the structure of an efficacy-building intervention. Instead of general workshop, policymakers should establish certain mentoring and coaching schemes, including instructional coaching cycles and peer observation models. These frameworks are essential because they offer the mastery experiences necessary in Social Cognitive Theory to develop authentic teacher confidence (Darling-Hammond et al., 2017; Gumus & Bellibaas, 2023). Second, school leadership development programmes must also be very clear in the training of school heads on innovative leadership behaviours that build teacher competence and confidence, as opposed to merely holding them accountable to obeying new pedagogical expectations. Third, since the main drive towards motivation by innovative leadership is mediated by self-efficacy, the constructions of professional learning communities that, on one hand, develop self-efficacy and, on the other hand, support colleagues, are a particularly effective institutional investment (Belay, Melesse & Seifu, 2021).

Limitations and Future Directions

This study has various limitations which ought to be used to interpret future studies. Cross-sectional design does not allow any causal inference. To address the weaknesses of convenience sampling and self-reports, subsequent studies ought to apply methodological triangulation, such as qualitative interviews. Also, a longitudinal panel design that is able to retrace self-efficacy development throughout the long-term cycles of TPD and leadership change would severely enhance causal statements and capture the nuanced experiences of teachers over one whole academic cycle. The sampling is restricted to the Volta Region and the entire Ghanaian population, as well as to other sub-Saharan education systems; however, the representation of public to private schools is approximately equal, which is a significant advantage of the sample.

Moreover, the study failed to capture the student learning outcomes, thereby making it impossible to determine whether classroom effectiveness is achieved by teacher motivation gains. Future assessment of this conceptual model must incorporate clearly 'Student Learning Outcomes as a distal variable. This expansion would show whether the increased teacher motivation leads to actual enhancement of student academic performance hence bridging the gap between the institutional inputs and educational outputs.

REFERENCES

1. Abeni, M. A., Quansah, F., & Dadzie, J. (2022). Career advancement and teacher motivation in Ghanaian senior high schools. African Journal of Education and Practice, 9(4), 39–50.
2. Abonyi, U. K., & Sofo, F. (2021). Exploring instructional leadership practices of leaders in Ghanaian basic schools. International Journal of Leadership in Education, 24(6), 838–854.
3. Ahmed, H. N., Pasha, A. R., & Malik, M. (2021). The role of teacher training programs in optimizing teacher motivation and professional development skills. Bulletin of Education and Research, 43(2), 17–37.
4. Ahn, J., & Bowers, A. J. (2024). Do teacher beliefs mediate leadership and teacher behaviors? Testing teacher self-efficacy's mediation role between leadership for learning and teacher outcomes. Journal of Educational Administration, 62(2), 197–222.
5. Alharbi, I. B. A. (2021). Innovative leadership: A literature review paper. Open Journal of Leadership, 10(3), 214–229.
6. Amemasor, D. A., Ghansah, B., & Essel, O. Q. (2025). Contextual challenges in teacher professional development in Ghana. Journal of African Education Research, 6(1), 1–18.
7. Bandura, A. (2023). Cultivate self-efficacy for personal and organizational effectiveness. Principles of Organizational Behavior: The Handbook of Evidence-Based Management (3rd ed., pp. 113–135). Wiley.
8. Bandura, A., & Wessels, S. (1997). Self-efficacy (pp. 4–6). Cambridge University Press.
9. Barni, D., Danioni, F., & Benevene, P. (2019). Teachers' self-efficacy: The role of personal values and motivations for teaching. Frontiers in Psychology, 10, 1645.
10. Belay, S., Melese, S., & Seifu, A. (2021). Advancing teachers' human capital through effective leadership and institutional safety: Mediating effect of professional learning and teaching climate. Cogent Education, 8(1), 1912488.
11. Byrne, B. M. (2016). Structural equation modeling with AMOS: Basic concepts, applications, and programming (3rd ed.). Routledge.
12. Çelik, O. T., & Kahraman, Ü. (2018). The relationship among teachers' general self-efficacy perceptions, job burnout and life satisfaction. Universal Journal of Educational Research, 6(12), 2721–2729.
13. Creswell, J. W. (2014). A concise introduction to mixed methods research. SAGE.
14. Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approach. SAGE.
15. Crotty, M. (1998). The foundations of social research: Meaning and perspective in the research process. SAGE.
16. Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective teacher professional development. Learning Policy Institute.
17. Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior. Psychological Inquiry, 11(4), 227–268.
18. Demir, S. (2020). The role of self-efficacy in job satisfaction, organizational commitment, motivation and job involvement. Eurasian Journal of Educational Research, 20(85), 205–224.
19. Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. Educational Researcher, 38(3), 181–199.
20. Eliasu, M., & Adjeiwaa, A. B. (2021). Understanding the factors affecting teacher motivation in Ghanaian schools. Journal of Educational Policy, 5(2), 44–58.
21. Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. American Journal of Theoretical and Applied Statistics, 5(1), 1–4.
22. Fairman, J. C., Smith, D. J., Pullen, P. C., & Lebel, S. J. (2022). The challenge of keeping teacher professional development relevant. In Leadership for professional learning (pp. 251–263). Routledge.

23. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50.
24. Forson, J. K., Opoku-Asante, K., & Gyamfi, E. O. (2021). Low salary and teacher motivation: A study of senior high school teachers in Ghana. International Journal of Education and Development, 7(3), 112–124.
25. Franklin, H., & Harrington, I. (2019). A review into effective classroom management and strategies for student engagement: Teacher and student roles in today's classrooms. Journal of Education and Training Studies, 7(4), 1–9.
26. Ghodang, H. (2021). The effect of innovative leadership and job satisfaction on teacher's performance. International Journal of Education and Research, 9(1), 39–54.
27. Gümüş, E., & Bellibaş, M. Ş. (2023). The relationship between the types of professional development activities teachers participate in and their self-efficacy: A multi-country analysis. European Journal of Teacher Education, 46(1), 67–94.
28. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24.
29. Hair Jr., J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated guidelines on which method to use. International Journal of Multivariate Data Analysis, 1(2), 107–123.
30. Halimah, H., Syafruddin, S., & Earlyanti, N. I. (2024). The role of innovative leadership in driving educational management transformation. QALAMUNA: Jurnal Pendidikan, Sosial, dan Agama, 16(1), 207–218.
31. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135.
32. Keane, T., Heard, R., & O'Brien, M. (2020). Leadership, technology integration and instructional self-efficacy: Perceptions of Australian teachers. Journal of Computer Assisted Learning, 36(3), 389–401.
33. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607–610.
34. Lazarides, R., & Warner, L. M. (2020). Teacher self-efficacy. In R. Lazarides & H. M. G. Watt (Eds.), New perspectives on motivation in school (pp. 1–27). Routledge.
35. Mavi, D., Arslan, A., & Çetin, M. (2025). Professional development and teacher motivation: The mediating role of self-efficacy. Teaching and Teacher Education, 148, 104634.
36. Noor, S., Noor, B., & Rehman, K. U. (2024). Transformational leadership and teacher motivation: The mediating role of self-efficacy. International Journal of Educational Management, 38(2), 299–315.
37. Normianti, H., Asran, M., & Ratminingsih, N. M. (2019). Relationship of transformational leadership of principal, teacher's motivation, teacher's job satisfaction to teacher's performance of elementary school. International Journal of Elementary Education, 3(2), 123–129.
38. Ofori, C. K. (2021). Working conditions, class size and teacher motivation in Ghanaian public schools. African Educational Research Journal, 9(2), 390–398.
39. Purwanti, E., & Octavia, S. A. (2022). The effect of teacher professional development on teacher motivation and teaching effectiveness. Journal of Educational Research, 115(5), 521–534.
40. Richter, D., Lazarides, R., & Richter, E. (2025). How teachers' professional development shapes their motivation: A longitudinal study. Teaching and Teacher Education, 143, 104562.
41. Riddel, M., & Zulfikar, T. (2024). Visionary leadership and teacher confidence in a changing educational landscape. Education Sciences, 14(1), 67.
42. Ringle, C. M., Wende, S., & Becker, J. M. (2022). SmartPLS 4. SmartPLS GmbH. https://www.smartpls.com
43. Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. Contemporary Educational Psychology, 61, 101860.
44. Sarstedt, M., & Ringle, C. M. (2017). Variance-based structural equation modeling: Guidelines for using partial least squares in information systems research. In M. Tate, Y. Evermann, & J. Nielson (Eds.), Handbook of partial least squares (pp. 193–221). Springer.
45. Schunk, D. H., & DiBenedetto, M. K. (2021). Self-efficacy and human motivation. In A. J. Elliot (Ed.), Advances in motivation science (Vol. 8, pp. 153–179). Academic Press.

46. Thurm, D., & Barzel, B. (2020). Effects of a professional development program for teaching mathematics with technology on teachers' beliefs, self-efficacy and practices. ZDM Mathematics Education, 52(7), 1411–1422.
47. Vidergor, H. E. (2023). High self-efficacy beliefs in teachers: Implications for creativity and innovative practice. Thinking Skills and Creativity, 49, 101375.
48. Wasserman, E., & Maymon, Y. (2017). The connection between professional development and teachers' self-efficacy and teaching performance. Cogent Education, 4(1), 1395004.
49. Yoon, I. H., & Goddard, R. D. (2023). High-quality professional development, collective teacher efficacy, and student achievement. Educational Administration Quarterly, 59(1), 74–103.
50. Zhang, Y., Lin, C. H., & Zheng, B. (2021). Teacher motivation in K-12 online and hybrid settings: A comparative study. Journal of Computer Assisted Learning, 37(5), 1347–1358.