



Implementation of the standards-based curriculum in Ghanaian senior high schools: Professional learning communities and teachers' self-efficacy

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ABSTRACT

This study examined the influence of professional learning community (PLC) engagement on teachers' self-efficacy in implementing the Standards-Based Curriculum (SBC) in Ghanaian Senior High Schools. The study was anchored in the integration of social cognitive theory and sociocultural theory. A descriptive cross-sectional survey design was adopted within a quantitative research approach. The study population comprised all 480 teachers from twelve public Senior High Schools in the Central Region of Ghana. A census method was used, involving all 480 teachers, of whom 468 successfully completed and returned the questionnaire, representing a response rate of 97.50%. Data were collected using a structured closed-ended questionnaire adapted from validated instruments. The collected data were coded, entered, and cleaned using the Statistical Package for the Social Sciences (SPSS) version 27. Descriptive statistics including frequencies and percentages were used to analyse the demographic characteristics. Following data screening and preparation, the hypothesised model was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS version 4.1.1.4. The results indicated that there was a statistically significant positive influence of PLCs on teachers' self-efficacy in implementing the SBC. Senior High Schools teachers' engagement in professional learning communities is essential for enhancing their self-efficacy and improving the effective implementation of the SBC in Ghanaian Senior High Schools. The study concluded that effective professional learning communities strengthen teachers' self-efficacy by providing collaborative learning opportunities, supportive professional relationships, and organisational conditions that enhance teachers' capacity to implement the SBC successfully. It is therefore recommended that the Ghana Education Service, Regional and District Education Directorates, and Senior High School administrators should strengthen professional learning communities by promoting collaborative professional learning, meaningful teacher participation in instructional decision-making, supportive professional cultures, and organisational structures that facilitate continuous teacher development.

Keywords: Curriculum Implementation; Professional Learning Communities; Standards-Based Curriculum, Teacher Self-efficacy



I. INTRODUCTION

The curriculum represents the foundation of quality education because it defines the knowledge, skills, values, and competencies that learners are expected to acquire through formal schooling. It provides the framework that guides teaching and learning processes and serves as a link between educational policies and classroom practices. Jacobs et al. (2011) explain that curriculum encompasses the explicit curriculum, formal syllabus, and subject matter taught in schools, functioning as a policy instrument that operates at multiple levels, including the classroom level (micro), school level (meso), and national policy level (macro). Curriculum reforms are often introduced with ambitious goals of improving learning outcomes, but they frequently encounter implementation difficulties because policy expectations are not always accompanied by adequate teacher preparation, institutional support, and implementation structures (Fullan, 2016; Van den Akker, 2018). Therefore, curriculum reforms may become symbolic initiatives where policy intentions are only partially translated into actual classroom practices. The importance of effective curriculum implementation is reflected in Sustainable Development Goal 4, which advocates inclusive and equitable quality education supported by effective teaching and learning systems (Department of Foreign Affairs and Trade [DFAT], 2018; United Nations Educational, Scientific and Cultural Organisation [UNESCO], 2019). Achieving quality education requires more than the development of well-designed curricula because it also depends on the competence and preparedness of teachers to translate curriculum expectations into meaningful classroom experiences. According to Hunkins and Ornstein (2013), curriculum implementation is influenced by the interaction among people, programmes, and processes, with communication serving as a mechanism through which curriculum policies are enacted in schools. Therefore, teachers occupy a central position in curriculum implementation because their knowledge, beliefs, professional practices, and confidence influence how curriculum reforms are translated into classroom realities.

One important factor influencing teachers' ability to successfully implement curriculum reforms is teacher self-efficacy. Teacher self-efficacy refers to teachers' beliefs about their capability to organise and execute actions required to accomplish desired instructional outcomes, including promoting students' engagement and learning (Zee & Koomen, 2016; Tschannen-Moran & Barr, 2004). Teachers with strong efficacy beliefs are more likely to demonstrate persistence when confronted with instructional challenges, adopt innovative teaching approaches, manage classrooms effectively, and use learner-centred pedagogical practices (Nie et al., 2013; Suprayogi et al., 2017). Teacher self-efficacy is commonly reflected in efficacy for students' engagement, instructional strategies, and classroom management (Tschannen-Moran & Hoy, 2001). These dimensions are relevant within curriculum reform contexts because successful implementation requires teachers to motivate learners, apply appropriate instructional approaches, and create supportive learning environments. Furthermore, teacher self-efficacy has been associated with positive professional outcomes, including higher motivation, job satisfaction, commitment, and improved teaching effectiveness (Caprara et al., 2006; Klassen & Chiu, 2010). Teaching has traditionally been characterised as an individualistic profession where teachers often work independently with limited opportunities for professional interaction (Lortie, 2020). Professional autonomy is valuable but excessive isolation can restrict opportunities for knowledge sharing, professional learning, and collective improvement (Goddard & Kim, 2018; Peterson et al., 2008). As educational demands become complex due to technological advancement, changing learner characteristics, and evolving curriculum expectations, collaborative professional environments have become essential for improving teacher capacity and sustaining educational quality (Tichenor & Tichenor, 2018).

In response to these issues, Professional Learning Communities (PLCs) have emerged internationally as an effective approach for promoting continuous, collaborative, and job-embedded teacher professional development. PLCs are grounded in the idea that teachers improve their professional practice through sustained collaboration, shared responsibility, reflective dialogue, and collective inquiry (Lave & Wenger, 1998; Wenger, 1998). Unlike conventional professional development approaches that often rely on short-term workshops with limited follow-up, PLCs emphasise ongoing professional learning embedded within teachers' daily work environments (Burns et al., 2018; Battersby & Verdi, 2015). Within PLCs, teachers collaboratively examine instructional challenges, share professional experiences, develop teaching strategies, and support one another's professional growth (Chen et al., 2018). Research has identified key conditions that sustain effective PLCs, including supportive leadership, collegial trust, shared practice, teacher autonomy, collaborative cultures, and continuous professional learning (French, 2017; Zhang & Pang, 2018; Hord, 2009; Lee et al., 2011; Hairon & Dimmock, 2012; Hallinger & Walker, 2017; Pang & Wang, 2016). PLCs address professional isolation while strengthening teachers' knowledge, confidence, and instructional capacity. Through collaborative learning, peer feedback, reflective discussions, information sharing, and collective problem-solving, teachers learn from one another and collectively solve instructional problems (Timperley, 2008; Quennerstedt & Maivorsdotter, 2016; Oddone et al., 2019; Runhaar & Sanders, 2016). Such interactions enable teachers to benefit from colleagues' expertise while contributing to the improvement of teaching practices within schools (Hood, 2018; Liou & Canrinus, 2020). Empirical evidence from countries such as the United States, Canada, China, and Australia indicates that effective PLCs contribute to improved teaching practices, teacher professional growth, enhanced student learning outcomes, and



stronger teacher self-efficacy (Stoll et al., 2006; Vescio et al., 2008; Prenger et al., 2019; Hine et al., 2019). These benefits suggest that PLCs support teachers during periods of curriculum reform and educational change.

In Ghana, the relevance of PLCs has gained recognition within educational reforms aimed at improving teacher effectiveness and learning outcomes. As part of the 2017 educational reforms, the Ministry of Education institutionalised PLCs as a mechanism for continuous professional development, requiring teachers to dedicate approximately two hours weekly to collaborative professional learning activities (Ministry of Education [MoE], 2019). Within Senior High Schools, PLCs are implemented through subject departmental meetings, collaborative lesson planning, peer mentoring, and professional learning sessions facilitated through the Ghana Education Service. These structures are intended to strengthen teachers' capacity to implement educational reforms, including the Standards-Based Curriculum (SBC). In some schools, PLC activities have been reduced to administrative discussions, examination preparation, or routine departmental meetings rather than meaningful reflective dialogue, collaborative inquiry, and professional learning. The successful implementation of Ghana's Standards-Based Curriculum requires teachers to move beyond traditional content transmission approaches towards learner-centred pedagogies that emphasise creativity, critical thinking, problem-solving, and competency development. Such changes require teachers to possess adequate professional knowledge and strong confidence in their ability to engage students, implement appropriate instructional strategies, and manage classroom environments effectively. Therefore, meaningful participation in PLCs may serve as a mechanism for strengthening teachers' self-efficacy during this transition. Through information sharing, collaborative problem-solving, peer support, and collective reflection, PLCs create opportunities for teachers to enhance their instructional competence and confidence. Information sharing within PLCs enables teachers to exchange teaching resources, discuss classroom experiences, and generate solutions to instructional challenges, thereby strengthening individual and collective professional knowledge (Oddone et al., 2019; Runhaar & Sanders, 2016). Such interactions allow teachers to benefit from colleagues' expertise while contributing to the improvement of teaching practices within the school system (Hood, 2018; Liou & Canrinus, 2020).

Previous studies (Zheng et al., 2019; Zheng et al., 2021; Zhang et al., 2023; Aboagye et al., 2026) have established positive relationships between PLC engagement and teacher self-efficacy, findings remain inconclusive regarding the specific PLC dimensions that contribute most significantly to efficacy development. For example, Zheng et al. (2019) found that collaborative activity, collective focus on student learning, de-privatised practice, and reflective dialogue positively predicted teacher self-efficacy, whereas Zheng et al. (2021) reported that only reflective dialogue significantly influenced teachers' self-efficacy. Moreover, Zhang et al. (2023) found that collective inquiry and sharing and shared purpose and responsibility significantly enhanced teacher self-efficacy, whereas Aboagye et al. (2026) reported that only continuous improvement significantly predicted classroom management practices. Furthermore, most existing studies (Liang et al., 2022; Anderson & Olivier, 2022; Singh & Loh, 2026; Thien & Hallinger, 2026; Zonoubi et al., 2017) have been conducted in countries such as China and Malaysia, with limited evidence from Ghanaian Senior High Schools implementing the Standards-Based Curriculum. Existing studies (Chen & Wang, 2015; Jiang, 2014; Ting, 2014; Hairon & Dimmock, 2012; Hallinger & Walker, 2017; Pang & Wang, 2016) have also been concentrated in Western and Asian educational settings and have frequently focused on primary schools or high-performing institutions, leaving limited understanding of how PLCs operate within mainstream Senior High Schools. This study, therefore, examines how the dimensions of professional learning communities influence teachers' efficacy for students' engagement, instructional strategies, and classroom management during the implementation of the Standards-Based Curriculum in Ghanaian Senior High Schools. Understanding how PLC engagement contributes to teachers' self-efficacy is essential for ensuring that curriculum reforms move beyond policy intentions and are effectively translated into classroom practices.

1.1 Research Objectives

- i. To examine the influence of professional learning communities on students' engagement in implementing the Standards-Based Curriculum in Ghanaian Senior High Schools.
- ii. To examine the influence of professional learning communities on instructional strategies in implementing the Standards-Based Curriculum in Ghanaian Senior High Schools.
- iii. To examine the influence of professional learning communities on classroom management in implementing the Standards-Based Curriculum in Ghanaian Senior High Schools.



II. LITERATURE REVIEW

2.1 Theoretical Review

This study is anchored in the integration of Bandura's social cognitive theory (Bandura, 1997; Lightsey, 1999) and Vygotsky's sociocultural theory (Vygotsky, 1978). Social cognitive theory explains human functioning through the reciprocal interaction among environmental, personal, and behavioural factors that shape individuals' actions, beliefs, and performance. The theory proposes that individuals are neither passive recipients of environmental influences nor solely determined by personal factors, but they actively interpret, regulate, and respond to their experiences based on their beliefs about their capabilities. Within the school environment, professional learning communities represent an environmental factor that can influence teachers' professional beliefs and instructional behaviours. Through PLC practices such as shared and supported leadership, shared values and vision, collective learning and application, shared personal practice, and supportive conditions, teachers are provided with opportunities to collaborate, reflect on their practices, receive feedback, and develop professionally. From a social cognitive theory perspective, these PLC experiences represent sources through which teachers' self-efficacy beliefs are developed and strengthened. Collaborative engagement with colleagues allows teachers to experience mastery through successful problem-solving and improved instructional practices. Furthermore, observing colleagues' teaching approaches and sharing professional experiences provide opportunities for vicarious learning, while constructive feedback and encouragement from colleagues and school leaders serve as social persuasion that reinforces teachers' confidence. Hence, teachers who actively participate in PLC activities are more likely to develop stronger beliefs in their ability to motivate and engage students, implement appropriate instructional strategies, and manage classroom environments effectively. These efficacy beliefs require teachers to adopt learner-centred approaches, apply innovative pedagogical strategies, and respond effectively to diverse learner needs.

In complementing social cognitive theory, Vygotsky's sociocultural theory emphasises that learning and professional development occur through social interaction, collaboration, and participation in culturally organised activities. The theory assumes that individuals construct knowledge through meaningful interactions with others, through engagement with more knowledgeable peers and members of a professional community. A central concept within the theory is the zone of proximal development (ZPD), which shows the difference between what individuals can achieve independently and what they can accomplish with guidance, support, and collaboration. The theory was originally developed to explain students' learning processes, but the principles of social mediation and scaffolding are equally applicable to teachers' professional learning. In this study, professional learning communities serve as social spaces where teachers collectively construct professional knowledge, exchange pedagogical experiences, and develop shared understandings of effective teaching practices. Through activities such as collaborative inquiry, reflective dialogue, peer observation, shared decision-making, and collective problem-solving, teachers support one another in overcoming instructional challenges associated with curriculum implementation. These interactions provide professional scaffolding that enables teachers to extend their existing knowledge, improve their instructional competence, and develop greater confidence in implementing the Standards-Based Curriculum. Therefore, PLCs do not only provide opportunities for knowledge acquisition but also create social conditions that promote continuous professional growth (Lantolf, 2000; John-Steiner & Mahn, 1996).

Sociocultural theory explains the processes through which teachers learn, share knowledge, and develop professionally through collaboration and participation in a supportive professional community. Social cognitive theory, on the other hand, explains how these socially constructed learning experiences influence teachers' perceptions of their own capabilities and their confidence in performing instructional tasks. Thus, professional learning communities function simultaneously as social learning environments and sources of efficacy-building experiences. Therefore, this study proposes that teachers' engagement in PLC activities strengthens their self-efficacy by providing opportunities for professional interaction, knowledge sharing, reflective practice, and collective improvement. These enhanced efficacy beliefs subsequently influence teachers' ability to effectively engage students, apply appropriate instructional strategies, and manage classroom environments during the implementation of the Standards-Based Curriculum within Ghanaian Senior High Schools.

2.2 Empirical Review

2.2.1 Professional Learning Communities and Students' engagement

Zheng et al. (2019) investigated the relationships among instructional leadership, professional learning community components, and teacher self-efficacy in mainland China. The study revealed that key PLC components, including collaborative activity, collective focus on student learning, de-privatised practice, and reflective dialogue, positively predicted teacher self-efficacy. The findings suggest that when teachers participate in collaborative activities centred on student learning, they develop stronger efficacy beliefs and improve their capacity to respond to students' learning needs. Again, Zhang et al. (2023) examined the effects of PLCs on teachers' self-efficacy and job satisfaction



in Shanghai. The study found that collective inquiry and sharing, as well as shared purpose and responsibility, significantly enhanced teachers' self-efficacy. Collective inquiry and sharing had a stronger effect, showing collaborative learning and knowledge exchange in strengthening teachers' confidence in supporting student learning. Further evidence was provided by Singh and Loh (2026) who examined the role of professional learning communities and teachers' trust in colleagues in strengthening collective efficacy beliefs among primary school teachers in Malaysia. The findings showed that PLCs directly influenced teacher efficacy through enabling conditions such as teacher influence, goal consensus, knowledge about colleagues' work, cohesive staff relationships, responsive leadership and effective intervention systems. These findings demonstrate that a supportive collaborative culture enhances teachers' confidence and collective responsibility for student outcomes. PLCs create professional environments where teachers collaboratively develop knowledge, share responsibility for student success, and acquire the confidence needed to engage learners effectively. Based on these findings, the following hypotheses are proposed:

2.2.2 Professional Learning Communities and Instructional Strategies

Zheng et al. (2021) examined the relationship between school-level PLCs, teachers' self-efficacy, and commitment. The study found that reflective dialogue significantly predicted teachers' self-efficacy, suggesting that meaningful professional conversations about teaching practices and student learning are more effective in strengthening teachers' instructional confidence than routine forms of collaboration. This indicates that reflective engagement within PLCs enables teachers to critically examine their practices and develop improved instructional approaches. Moreover, Liang et al. (2022), drawing on the job demands-resources model, explored the relationship between PLC participation, teachers' well-being, and self-efficacy. The findings revealed that PLC participation positively influenced teachers' self-efficacy by expanding their knowledge, skills, and professional experiences. The study further indicated that PLCs were effective in enhancing efficacy related to instructional strategies because collaborative learning encouraged teachers to reflect critically on their teaching practices and improve their professional capabilities. Supporting these findings, Zonoubi et al. (2017) investigated the contribution of PLC interventions to novice and experienced English as a Foreign Language teachers' self-efficacy. The study found that experienced teachers' self-efficacy improved in employing innovative instructional strategies and language proficiency, while novice teachers also developed stronger professional confidence through PLC participation. The findings demonstrate that sustained engagement in PLC activities provides teachers with opportunities to learn new methods, experiment with instructional innovations, and strengthen their teaching competence. PLCs enhance teachers' instructional efficacy by promoting reflective practice, professional learning, and the exchange of pedagogical knowledge. Accordingly, the following hypotheses are proposed:

2.2.3 Professional Learning Communities and Classroom Management

Anderson and Olivier (2022) examined teachers' participation in PLC processes and their influence on individual and collective efficacy. The study reported that PLC participation significantly enhanced teachers' efficacy beliefs, with highly efficacious teachers being more capable of adopting challenging instructional approaches, maintaining high expectations, and managing classrooms effectively. The findings indicate that professional collaboration strengthens teachers' confidence in addressing classroom-related challenges. In the Ghanaian context, Aboagye et al. (2026) examined the influence of PLCs on teachers' classroom management practices during the implementation of the Standards-Based Curriculum. The findings revealed that continuous improvement significantly and positively predicted classroom management practices, while other PLC dimensions, including shared mission, vision, values and goals, collaboration, collective inquiry, action orientation and results orientation, did not significantly predict classroom management. The study notes that PLCs contribute to effective classroom management when they are grounded in continuous professional growth rather than occasional collaborative activities. Furthermore, Thien and Hallinger (2026) examined the relationships among principal instructional leadership, teacher professional learning, and teacher self-efficacy using complexity theory. The study revealed that teacher professional learning and teacher self-efficacy are interconnected, suggesting a reciprocal relationship where professional learning experiences strengthen teachers' efficacy beliefs, while stronger efficacy encourages continued professional engagement. Such reciprocal development is essential for teachers' confidence in managing classroom situations effectively. PLCs strengthen teachers' classroom management efficacy by promoting continuous professional development, collaborative problem-solving, and confidence in addressing instructional challenges. Therefore, the following hypotheses are proposed:



III. METHODOLOGY

3.1 Research Design, Population and Sampling

This study adopted a descriptive cross-sectional survey design within a quantitative research approach to examine how professional learning communities influence teachers' self-efficacy in implementing the Standards-Based Curriculum. A descriptive cross-sectional design is appropriate for research that seeks to collect data to describe, explain, and interpret existing conditions or relationships among variables within a defined population (Wang & Cheng, 2020; Hunziker & Blankenagel, 2021; Ghanad, 2023). Khan and Jain (2025) further assert that such designs are useful in addressing research questions or testing hypotheses by providing a snapshot of the current situation. The choice of this design was further informed by its ability to accommodate large sample sizes efficiently, thereby enhancing the generalisability of the findings. The study population comprised all 480 teachers from twelve public Senior High Schools in the Central Region of Ghana implementing the Standards-Based Curriculum. These schools included Mfantshipim School (56 teachers), Wesley Girls' High School (55), Adisadel College (55), St. Augustine's College (54), Holy Child School (50), Ghana National College (44), Aggrey Memorial A.M.E. Zion Senior High School (42), University Practice Senior High School (40), Academy of Christ the King (22), Oguua Senior High Technical School (21), Effutu Senior High Technical School (21), and Cape Coast Technical Institute (20). These teachers were selected because they were directly involved in implementing the Standards-Based Curriculum and had practical experience with its implementation. Given the relatively manageable and accessible population, a census method was used, involving all 480 teachers. This sampling method is recommended in situations where the population is manageable, as it allows for complete coverage and eliminates sampling error (Davis, 2021; Skinner, 2018). Of the 480 questionnaires administered, 468 were successfully completed and returned, representing a 97.50% response rate. This response rate was considered adequate for the analysis and enhanced the representativeness and credibility of the study findings.

3.2 Data Collection Instrument and Instrumentation

The primary instrument for data collection was a structured questionnaire titled "Questionnaire for Teachers," adapted from existing validated scales. Questionnaires are appropriate for quantitative research as they enable the systematic collection of data and facilitate the examination of relationships among variables and the testing of theoretical assumptions (Alordiah & Ossai, 2023; Aithal & Aithal, 2020; Humble, 2020). Section A of the questionnaire gathered background information from teachers, including sex, age, and teaching experience. Section B measured professional learning community (PLC) practices, adapted from Hord (1997), and comprised six dimensions: shared and supportive leadership (4 items), shared values and vision (4 items), collective learning and application (4 items), shared personal practice (4 items), supportive conditions–relationships (4 items), and supportive conditions–structures (4 items). Section C measured teachers' self-efficacy, adapted from Tschannen-Moran and Hoy (2001), across three domains namely efficacy for students' engagement (8 items), efficacy for instructional strategies (8 items), and efficacy for classroom management (8 items). The data collection was carried out personally by the researchers following a structured and ethical procedure to ensure credibility and clarity. The data were collected over a period of six weeks. An official introductory letter was obtained from the Head of the Department of Business and Social Sciences Education, University of Cape Coast, and presented to the heads of the selected Senior High Schools to request institutional approval for administering the instrument. Upon approval, the researchers distributed the questionnaires personally to the teachers in the selected schools. Respondents were instructed to read all directions carefully and were reminded of the importance of providing honest and accurate responses to ensure the validity of the findings.

3.3 Common Method Bias

Common method bias (CMB) was assessed to determine whether the use of a self-reported questionnaire introduced systematic measurement error into the study. Harman's single-factor test was used as a preliminary diagnostic technique for detecting common method variance (Podsakoff et al., 2003). All measurement items were entered into an exploratory factor analysis using an unrotated principal component solution. The results indicated that the first factor accounted for 44.513% of the total variance, which is below the commonly accepted threshold of 50%. This finding suggests that common method bias is not a serious concern in this study and is therefore unlikely to have significantly influenced the observed relationships among the study variables (Fuller et al., 2016). In addition, full collinearity variance inflation factors (VIFs) were examined to provide further evidence of the absence of common method bias. All VIF values were below the recommended threshold of 3.3, indicating that common method bias was unlikely to threaten the validity of the study findings (Kock & Mayfield, 2015). The results of the full collinearity VIF assessment are presented in Table 2.



3.4 Data Processing and Analysis

The collected data were first entered and cleaned using the Statistical Package for the Social Sciences (SPSS) version 27 to ensure accuracy, completeness, and consistency. Descriptive statistics, including frequencies counts and percentages were used to analyse the demographic characteristics of the respondents. Following data screening and preparation, the hypothesised model was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS version 4.1.1.4. The analysis commenced with the assessment of the measurement model to evaluate the reliability and validity of the constructs. Indicator reliability was examined using outer loadings, while internal consistency reliability was assessed using Cronbach's alpha, rho_A, and composite reliability (CR). Convergent validity was evaluated using the Average Variance Extracted (AVE). Discriminant validity was assessed using the Fornell–Larcker criterion, and the Heterotrait–Monotrait (HTMT) ratio to ensure that the constructs were empirically distinct. In addition, the Variance Inflation Factor (VIF) was examined to detect potential multicollinearity among the indicators. After establishing the adequacy of the measurement model, the structural model was evaluated to test the hypothesised relationships among the study constructs. The assessment included the path coefficients (β), standard deviations (SD) t-values, p-values using the bootstrapping procedure with 5,000 resamples, the coefficient of determination (R^2), effect size (f^2) and predictive relevance (Q^2). These analyses provided comprehensive evidence regarding the influence of professional learning communities on teachers' self-efficacy in implementing the Standards-Based Curriculum.

3.5 Ethical Consideration

Ethical considerations were carefully observed throughout the conduct of this study to ensure the protection, dignity, and rights of all participants. Participation in the study was entirely voluntary, and respondents were adequately informed about the purpose, procedures, and significance of the research before completing the questionnaire. Respondents were assured that they had the right to decline participation or withdraw from the study at any stage without any negative consequences. Informed consent was obtained from all respondents before the administration of the research instrument. The confidentiality and anonymity of respondents were strictly maintained throughout the study. Respondents were not required to provide names or any personal identifiers that could reveal their identities. All information collected was used solely for academic purposes and was handled with strict confidentiality. The researchers ensured that the data were securely stored and accessed only for the purpose of analysis and reporting of the research findings. The findings were reported objectively without manipulating, misrepresenting, or disclosing information that could identify individual respondents or schools. These ethical measures helped to promote trust, honesty, and integrity throughout the research process.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Demographic Information of Employees

The demographic characteristics of the teachers were examined, namely gender, age, and teaching experience. Descriptive statistics, specifically frequencies and percentages, were used to summarise these background characteristics. The results are presented in Table 1.

Table 1

Demographic Characteristics of Respondents

Constructs		Frequency	Percentages
Gender	Male	279	59.60
	Female	189	40.40
Age (years)	Below 30	47	10.00
	31 – 35	234	50.00
	36 – 40	140	29.90
	Above 40	47	10.00
Working Experience (years)	1 – 5	12	2.60
	6 – 10	107	22.90
	11 – 15	247	52.80
	Above 15	102	21.80

Results from Table 1 showed that male teachers constituted the majority of the respondents ($n = 279$; 59.60%), while female teachers accounted for 189 (40.40%), indicating a relatively male-dominated sample. Regarding age, the

majority of the respondents were 31–35 years ($n = 234$; 50.00%), followed by those aged 36–40 years ($n = 140$; 29.90%). Teachers aged below 30 years and above 40 years each constituted 47 respondents (10.00%), suggesting that the respondents were predominantly young and middle-aged teachers actively engaged in implementing the Standards-Based Curriculum. With respect to teaching experience, the majority of the respondents had 11–15 years of teaching experience ($n = 247$; 52.80%), followed by those with above 15 years ($n = 102$; 21.80%) and 6–10 years ($n = 107$; 22.90%). Only 12 respondents (2.60%) had 1–5 years of teaching experience. This indicates that the study captured teachers with considerable teaching experience, whose responses were likely to be informed by their extensive professional practice and direct involvement in implementing the Standards-Based Curriculum.

4.1.2 Measurement Model

In Partial Least Squares Structural Equation Modelling (PLS-SEM), the measurement model was first assessed to ensure that the constructs measuring professional learning communities and teachers' self-efficacy were reliable, valid, and suitable for further analysis. The assessment involved examining indicator reliability, internal consistency reliability, convergent validity, discriminant validity, and multicollinearity to establish that the measurement items adequately represented their respective latent constructs. These assessments are essential for ensuring the accuracy, consistency, and robustness of the measurement model before evaluating the structural relationships among the study variables (Hair et al., 2012; Hair Jr et al., 2020).

Internal Consistency and Convergent Validity of Constructs: Table 2 and Figure 2 presented the results of the assessment of indicator reliability, internal consistency reliability, and convergent validity of the measurement model, including indicator loadings, Cronbach's alpha, rho_A, composite reliability (CR), and Average Variance Extracted (AVE). According to Hair et al. (2021), indicator loadings of .70 and above are considered acceptable, although loadings ranging from .40 to .70 may be retained in social science research provided they do not adversely affect the reliability and validity of the construct. In this study, all indicator loadings met the recommended threshold, and therefore no measurement items were removed because none compromised the reliability or validity of their respective constructs. The results further revealed that all constructs demonstrated satisfactory internal consistency reliability, with Cronbach's alpha, rho_A, and composite reliability values exceeding the recommended minimum threshold of 0.70, indicating that the measurement items consistently measured their respective latent constructs. Furthermore, convergent validity was established, as all constructs recorded Average Variance Extracted (AVE) values greater than the recommended threshold of .50, demonstrating that the indicators adequately converged in measuring their intended constructs (Hair et al., 2011). Overall, the findings indicate that the measurement model satisfied the required reliability and validity criteria, confirming its adequacy and robustness for the subsequent assessment of the structural model.

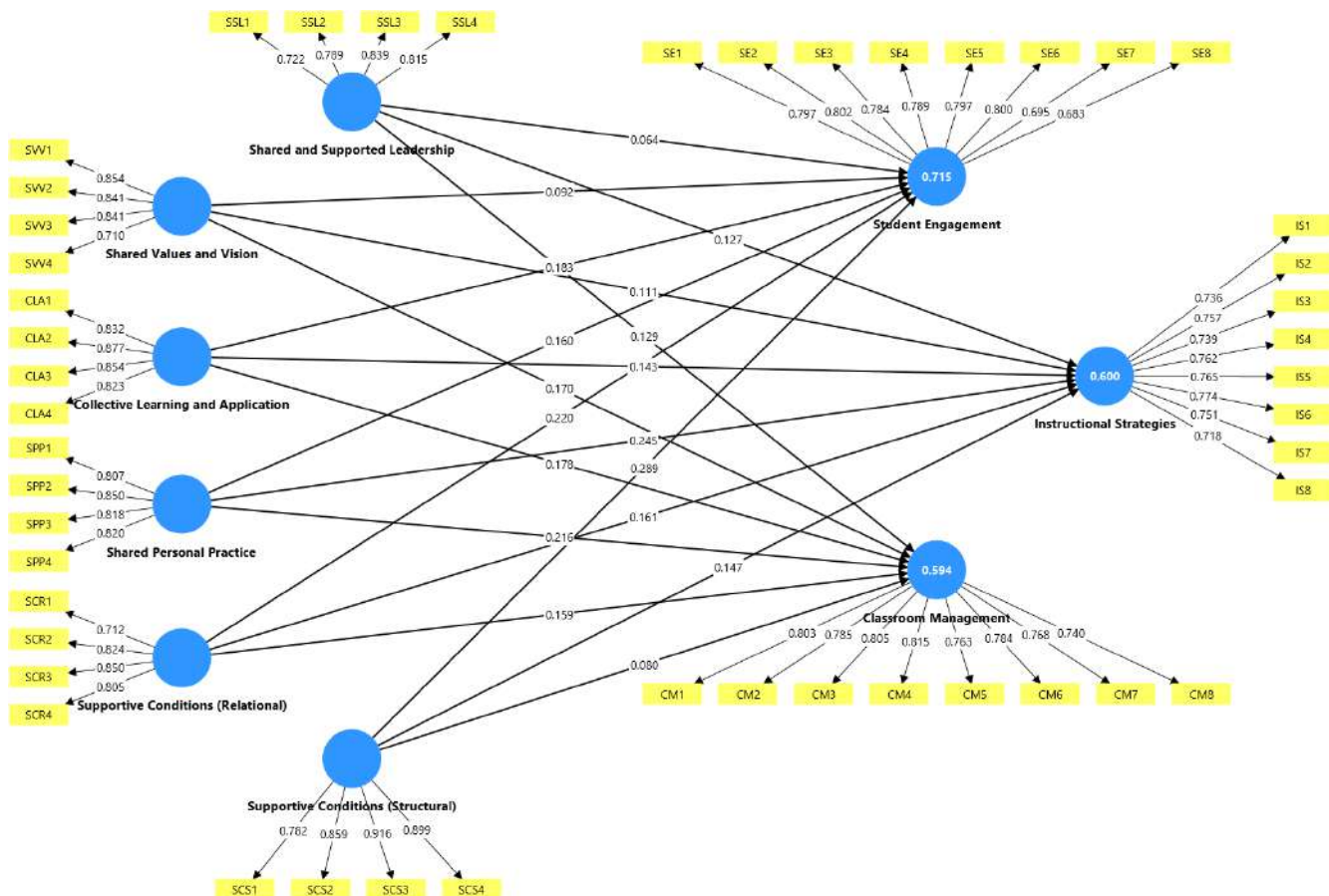
Table 2

Internal Consistency and Convergent Validity of Constructs

Constructs		Loadings	VIF	Cronbach Alpha	Rho_a	Rho_c	AVE
Shared and Supported Leadership (SSL)				.802	.803	.871	.628
	SSL1	.722	1.338				
	SSL2	.789	1.516				
	SSL3	.839	2.182				
	SSL4	.815	2.084				
Shared Values and Vision (SVV)				.828	.830	.886	.662
	SVV1	.854	2.111				
	SVV2	.841	2.159				
	SVV3	.841	2.045				
	SVV4	.710	1.364				
Collective Learning and Application (CLA)				.868	.869	.910	.717
	CLA1	.832	1.991				
	CLA2	.877	2.434				
	CLA3	.854	2.205				
	CLA4	.823	1.861				
Shared Personal Practice (SPP)				.842	.842	.894	.679
	SPP1	.807	1.770				
	SPP2	.850	2.062				
	SPP3	.818	1.843				



	SPP4	.820	1.827				
Supportive Conditions (Relationships) (SCR)				.810	.812	.876	.640
	SCR1	.704	1.317				
	SCR2	.827	2.002				
	SCR3	.854	2.112				
	SCR4	.805	1.763				
Supportive Conditions (Structures) (SCS)				.887	.889	.922	.749
	SCS1	.782	1.730				
	SCS2	.859	2.301				
	SCS3	.916	3.537				
	SCS4	.899	3.122				
Students' engagement (SE)				.901	.902	.921	.593
	SE1	.797	2.205				
	SE2	.802	2.389				
	SE3	.784	2.075				
	SE4	.789	2.216				
	SE5	.797	2.188				
	SE6	.800	2.232				
	SE7	.695	1.817				
	SE8	.683	1.816				
Instructional Strategies (IS)				.889	.889	.912	.563
	IS1	.736	2.073				
	IS2	.757	2.242				
	IS3	.739	2.055				
	IS4	.762	2.153				
	IS5	.765	2.976				
	IS6	.774	2.827				
	IS7	.751	2.001				
	IS8	.718	1.828				
Classroom Management (CM)				.910	.911	.927	.613
	CM1	.803	2.696				
	CM2	.785	2.606				
	CM3	.805	2.411				
	CM4	.815	2.511				
	CM5	.763	1.948				
	CM6	.784	2.313				
	CM7	.768	2.138				
	CM8	.740	1.892				

**Figure 2**

PLS-SEM Measurement Model

Source: Field Data (2026)

Discriminant Validity: Table 3 presented the results of the discriminant validity assessment of the measurement model, which was conducted to determine the extent to which the constructs measuring professional learning communities and teachers' self-efficacy are empirically distinct from one another (Hair Jr et al., 2020). Discriminant validity was assessed using both the Heterotrait–Monotrait ratio (HTMT) and the Fornell–Larcker criterion. The HTMT results indicated that all values were below the recommended threshold of .90, suggesting that the constructs did not exhibit problematic overlap. Furthermore, the Fornell–Larcker criterion confirmed discriminant validity, as the square roots of the Average Variance Extracted (AVE), presented in bold along the diagonal, exceeded the corresponding inter-construct correlations. These findings demonstrate that the constructs were empirically distinct and conceptually independent, thereby confirming adequate discriminant validity.

Table 3*Heterotrait-Monotrait Ratio (HTMT) and Fornell–Larcker*

	CM	CLA	IS	SPP	SVV	SSL	SE	SCR	SCS
CM	.783	.653	.831	.664	.626	.601	.703	.648	.595
CLA	.733	.847	.638	.635	.685	.593	.696	.603	.615
IS	.823	.724	.751	.680	.593	.595	.779	.665	.630
SPP	.758	.743	.785	.824	.573	.580	.704	.709	.628
SVV	.720	.811	.690	.687	.814	.633	.615	.565	.488
SSL	.694	.707	.697	.699	.775	.792	.604	.573	.533
SE	.777	.787	.871	.809	.713	.707	.770	.747	.744
SCR	.756	.718	.783	.859	.691	.706	.875	.800	.744
SCS	.662	.700	.708	.728	.570	.630	.832	.880	.865

Multicollinearity Assessment: Multicollinearity among the predictor constructs was assessed using the Variance Inflation Factor (VIF) to ensure that excessive correlations among the indicators did not bias the parameter estimates. Assessing multicollinearity is essential because high collinearity can inflate standard errors, distort path coefficient estimates, and reduce the stability of the structural model (Hair et al., 2011). According to Henseler et al. (2012), VIF



values below 5.0 indicate that multicollinearity is not a concern. The results presented in Table 3 show that all VIF values were below the recommended threshold of 5.0, confirming the absence of problematic multicollinearity and supporting the suitability of the measurement model for structural model evaluation.

Structural Model Assessment: Following the establishment of the reliability and validity of the measurement model, the structural model was assessed to examine the influence of professional learning communities on teachers' self-efficacy in implementing the Standards-Based Curriculum. Specifically, the analysis examined the extent to which professional learning communities predict teachers' efficacy for instructional strategies, classroom management, and students' engagement. To assess the proposed relationships, the bootstrapping procedure with 5,000 resamples was used to determine the significance, robustness, and stability of the estimated path coefficients. The structural model was evaluated using path coefficients (β), standard deviations, t-values, p-values, the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). The results of the structural model assessment are presented in Table 4 and illustrated in Figure 3.

Table 4

PLS-SEM Bootstrap Results

Path	β	SD	t	p	f^2
H _{1a} : SSL -> SE	.064	.043	1.505	.132	.007
H _{1b} : SVV -> SE	.092	.049	1.885	.059	.013
H _{1c} : CLA -> SE	.183	.049	3.750	< .001*	.047
H _{1d} : SPP -> SE	.160	.052	3.053	.002*	.037
H _{1e} : SCR -> SE	.220	.060	3.659	< .001*	.056
H _{1f} : SCS -> SE	.289	.052	5.576	< .001*	.115
H _{2a} : SSL -> IS	.127	.047	2.686	.007*	.024
H _{2b} : SVV -> IS	.111	.055	2.025	.043*	.018
H _{2c} : CLA -> IS	.143	.057	2.510	.012*	.020
H _{2d} : SPP -> IS	.245	.060	4.065	< .001*	.101
H _{2e} : SCR -> IS	.161	.069	2.324	.020*	.021
H _{2f} : SCS -> IS	.147	.058	2.513	.012*	.021
H _{3a} : SSL -> CM	.129	.046	2.792	.005*	.024
H _{3b} : SVV -> CM	.170	.061	2.771	.006*	.038
H _{3c} : CLA -> CM	.178	.060	2.956	.003*	.031
H _{3d} : SPP -> CM	.216	.064	3.362	.001*	.080
H _{3e} : SCR -> CM	.159	.067	2.367	.018*	.021
H _{3f} : SCS -> CM	.080	.059	1.366	.172	.006
Coefficient of Determination			Predictive Relevance		
	R^2	adj. R^2			Q^2
SE	.715	.711		SE	.703
IS	.591	.587		IS	.580
CM	.586	.582		CM	.574

Source: Field Data (2026)

Significant at $p < .05^*$

The bootstrapping results in Table 4 indicated that regarding students' engagement (SE), shared and supported leadership (SSL) did not significantly influence students' engagement ($\beta = .064$; $t = 1.505$; $p = .132$; $f^2 = .007$). Moreover, shared values and vision (SVV) showed no statistically significant influence on students' engagement ($\beta = .092$; $t = 1.885$; $p = .059$; $f^2 = .013$). However, collective learning and application (CLA) had a significant positive influence on students' engagement ($\beta = .183$; $t = 3.750$; $p < .001$; $f^2 = .047$), indicating that collaborative learning activities among teachers enhance their confidence in engaging students. Shared personal practice (SPP) also positively influenced students' engagement ($\beta = .160$; $t = 3.053$; $p = .002$; $f^2 = .037$), suggesting that peer observation, feedback, and the sharing of instructional practices strengthen teachers' efficacy in promoting student participation. Again, supportive conditions (relationships) (SCR) significantly and positively influenced students' engagement ($\beta = .220$; $t = 3.659$; $p < .001$; $f^2 = .056$), while supportive conditions (structures) (SCS) recorded the strongest positive influence on students' engagement ($\beta = .289$; $t = 5.576$; $p < .001$; $f^2 = .115$). All significant relationships exhibited small effect sizes, but supportive structural conditions demonstrated the largest practical contribution. Therefore, hypotheses H_{1c}, H_{1d}, H_{1e}, and H_{1f} were supported, whereas H_{1a} and H_{1b} were not supported.

With respect to instructional strategies (IS), all six PLC dimensions significantly and positively influenced teachers' efficacy in using instructional strategies. Shared and supported leadership positively influenced instructional strategies ($\beta = .127$; $t = 2.686$; $p = .007$; $f^2 = .024$), indicating that participatory leadership enhances teachers' confidence in selecting and applying effective teaching approaches. Shared values and vision also demonstrated a significant



positive effect ($\beta = .111$; $t = 2.025$; $p = .043$; $f^2 = .018$), suggesting that a common instructional purpose strengthens teachers' instructional confidence. Furthermore, collective learning and application significantly influenced instructional strategies ($\beta = .143$; $t = 2.510$; $p = .012$; $f^2 = .020$), while shared personal practice exerted the strongest positive influence ($\beta = .245$; $t = 4.065$; $p < .001$; $f^2 = .101$), highlighting that peer mentoring, classroom observation, and professional feedback improve teachers' instructional efficacy. Supportive conditions (relationships) ($\beta = .161$; $t = 2.324$; $p = .020$; $f^2 = .021$) and supportive conditions (structures) ($\beta = .147$; $t = 2.513$; $p = .012$; $f^2 = .021$) also significantly enhanced teachers' efficacy for instructional strategies. All significant effects were small, but shared personal practice exhibited the greatest practical effect. Therefore, hypotheses H_{2a} , H_{2b} , H_{2c} , H_{2d} , H_{2e} , and H_{2f} were all supported.

Concerning classroom management (CM), shared and supported leadership significantly and positively influenced teachers' efficacy for classroom management ($\beta = .129$; $t = 2.792$; $p = .005$; $f^2 = .024$). Shared values and vision also demonstrated a significant positive influence ($\beta = .170$; $t = 2.771$; $p = .006$; $f^2 = .038$), indicating that common goals and shared commitments enhance teachers' confidence in managing classroom behaviour. In addition, collective learning and application positively influenced classroom management ($\beta = .178$; $t = 2.956$; $p = .003$; $f^2 = .031$), while shared personal practice recorded the strongest positive influence ($\beta = .216$; $t = 3.362$; $p = .001$; $f^2 = .080$), suggesting that collaborative reflection and peer support strengthen teachers' classroom management capabilities. Supportive conditions (relationships) also significantly influenced classroom management ($\beta = .159$; $t = 2.367$; $p = .018$; $f^2 = .021$). However, supportive conditions (structures) did not significantly influence classroom management ($\beta = .080$; $t = 1.366$; $p = .172$; $f^2 = .006$). The significant relationships exhibited small effect sizes, with shared personal practice demonstrating the largest contribution to classroom management efficacy. Therefore, hypotheses H_{3a} , H_{3b} , H_{3c} , H_{3d} , and H_{3e} were supported, whereas H_{3f} was not supported.

Following the assessment of the structural model, the coefficient of determination (R^2) was examined to determine the explanatory power of professional learning communities on the three dimensions of teachers' self-efficacy, namely efficacy for students' engagement (SE), instructional strategies (IS), and classroom management (CM). As presented in Table 4, the model yielded an R^2 value of .715 (adjusted $R^2 = .711$) for students' engagement, indicating that professional learning communities explained 71.50% of the variance in students' engagement. Again, the model produced an R^2 value of .591 (adjusted $R^2 = .587$) for instructional strategies, suggesting that professional learning communities explained 59.10% of the variance in instructional strategies. For classroom management, the model yielded an R^2 value of .586 (adjusted $R^2 = .582$), indicating that professional learning communities accounted for 58.60% of the variance in classroom management. According to Hair et al. (2011), R^2 values of .75, .50, and .25 indicate substantial, moderate, and weak explanatory power, respectively. Therefore, the model demonstrated moderate to substantial explanatory power, suggesting that professional learning communities are strong predictors of the three dimensions of teachers' self-efficacy. In addition, the predictive relevance (Q^2) of the model was assessed using the blindfolding procedure. The results revealed Q^2 values of .703 for efficacy for students' engagement, .580 for efficacy for instructional strategies, and .574 for efficacy for classroom management. Since all Q^2 values exceeded the recommended threshold of zero, the findings indicate that the structural model possesses strong predictive relevance and that professional learning communities have substantial predictive capability for the three dimensions of teachers' self-efficacy in implementing the Standards-Based Curriculum (Hair et al., 2011).

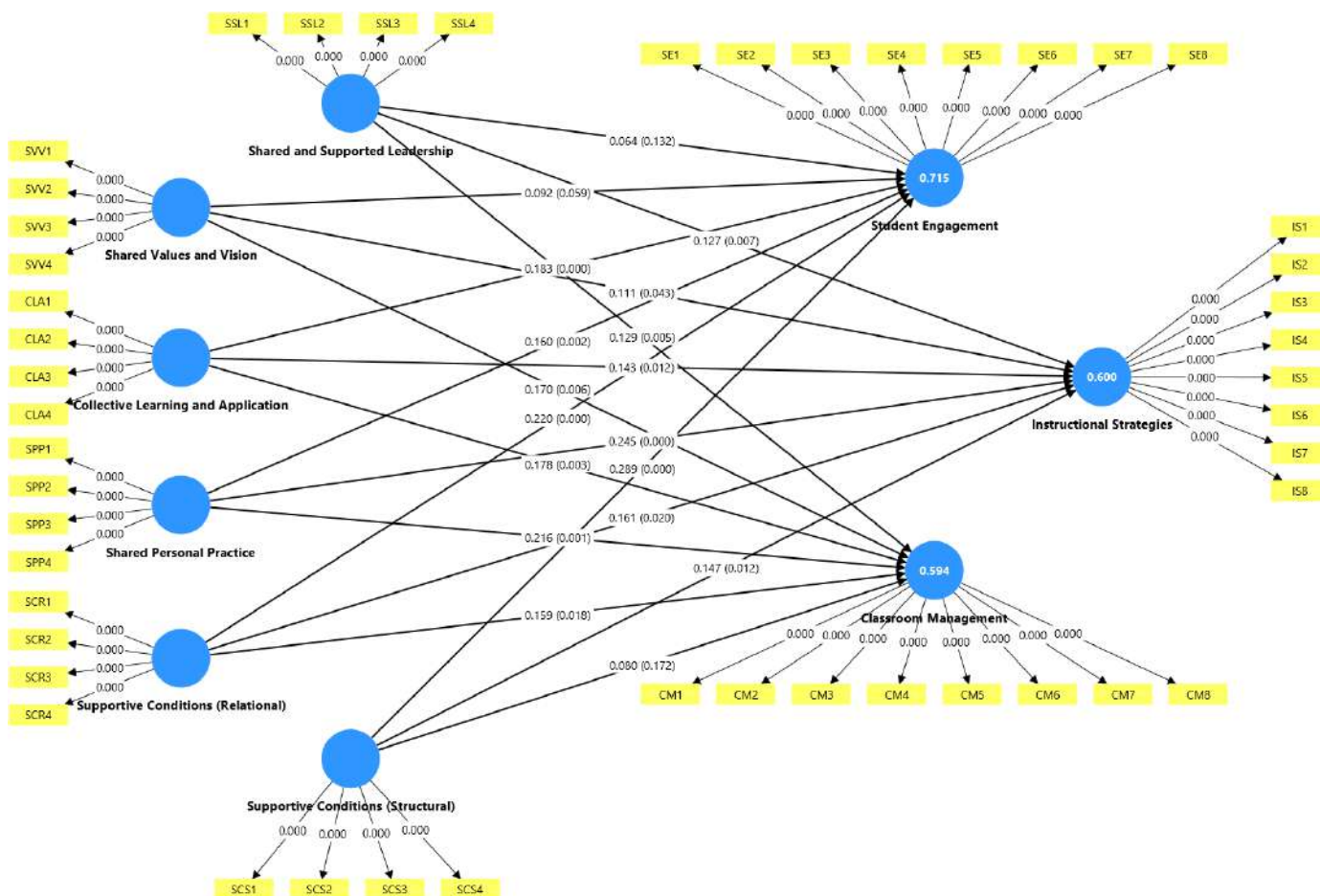


Figure 3
PLS-SEM Bootstrap Results

4.2 Discussion

Research hypothesis H_1 examined the influence of PLCs on students' engagement in implementing the SBC. The findings revealed that shared and supported leadership and shared values and vision did not significantly influence students' engagement, although their relationships were positive. Leadership participation, teacher involvement in decision-making, and shared school goals create supportive conditions but they may not directly strengthen teachers' confidence in engaging learners unless they are connected to classroom-focused professional activities. This results differs from Singh and Loh (2026) and Zheng et al. (2019) who reported significant effects of leadership support and PLC practices on teacher efficacy. The difference may be explained by contextual variations, as PLC structures in Malaysian and Chinese schools may be more established and strongly linked to instructional improvement, whereas Ghanaian Senior High Schools are still developing PLC practices alongside SBC implementation. However, the significant influence of collective learning and application, shared personal practice, and supportive conditions suggests that teachers' confidence in promoting student engagement develops more strongly through direct professional interactions, such as sharing instructional experiences, receiving peer feedback, and collaboratively addressing learner challenges. This supports Zheng et al. (2019), Zhang et al. (2023), and Singh and Loh (2026) who emphasised collaborative inquiry, knowledge exchange, and professional support in strengthening teacher efficacy. Thus, within the SBC context, PLCs appear to influence students' engagement more effectively when they provide teachers with practical opportunities to improve their classroom practices rather than only creating shared leadership structures or common goals.

Research hypothesis H_2 examined the influence of PLCs on instructional strategies in implementing the SBC, and the findings showed that all PLC dimensions significantly and positively influenced teachers' instructional strategies. Teachers' confidence in applying learner-centred and competency-based approaches is strengthened when they experience supportive leadership, shared instructional goals, collaborative learning, professional dialogue, and adequate organisational support. The results are consistent with Zheng et al. (2021), Liang et al. (2022), and Zonoubi et al. (2017) who found that PLC participation enhances teachers' instructional efficacy by expanding professional knowledge, encouraging reflection, and promoting innovative teaching practices. The agreement may be because PLCs provide teachers with opportunities to examine their instructional decisions, learn from colleagues, and develop alternative



approaches to addressing classroom demands. In the context of the SBC, teachers are expected to design engaging lessons, apply varied assessment strategies, promote critical thinking, and respond to diverse learner needs, therefore such collaborative professional learning becomes essential. Effective instructional strategy implementation is not solely dependent on teachers' individual competence but also on the availability of professional environments where teachers can continuously learn, reflect, and improve their practices.

Research hypothesis H_3 examined the influence of PLCs on classroom management in implementing the SBC. The findings revealed that shared and supported leadership, shared values and vision, collective learning and application, shared personal practice, and relational support significantly influenced classroom management efficacy, whereas structural support did not significantly influence teachers' confidence in managing classrooms. Teachers develop stronger classroom management efficacy when they receive professional encouragement, engage in collaborative reflection, and learn from colleagues' classroom experiences. This supports Anderson and Olivier (2022) and Thien and Hallinger (2026) who found that professional learning experiences strengthen teachers' efficacy beliefs and their ability to respond to instructional challenges. However, the finding regarding shared values and vision differs from Aboagye et al. (2026) who found that shared mission, vision, values, and goals did not predict classroom management practices among Ghanaian teachers. This difference may be due to the distinction between teachers' confidence in managing classrooms and their actual classroom practices. Structural conditions such as resources and schedules support professional activities, but the findings suggest that classroom management efficacy is developed more through practical experiences, professional relationships, and collaborative problem-solving. Therefore, PLCs serve as spaces for helping teachers manage the interactive and learner-centred classrooms required under the SBC.

The findings are supported by social cognitive theory and sociocultural theory, which explain that teachers' efficacy beliefs and professional competence develop through interactions between individuals, their environment, and social experiences. From a social cognitive perspective, PLCs strengthen teachers' efficacy through mastery experiences gained from solving professional challenges, vicarious experiences obtained by observing colleagues' practices, and social persuasion received through feedback and encouragement. Sociocultural theory further explains that professional growth occurs through participation in shared practices where teachers receive scaffolding through collaboration, mentoring, reflective dialogue, and collective inquiry. Therefore, teachers' capacity to implement the SBC is shaped not only by individual knowledge and skills but also by the quality of professional learning opportunities, collaborative relationships, and supportive conditions within their schools.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study concluded that professional learning communities serve as a critical mechanism through which teachers develop the confidence, knowledge, and professional capacity required for effective implementation of the Standards-Based Curriculum. Senior High School teachers' ability to promote students' engagement, apply appropriate instructional strategies, and manage learner-centred classrooms is influenced not only by their individual abilities but also by the quality of collaborative professional experiences and supportive environments within which they operate. Curriculum implementation is viewed as a collective professional process where teachers continuously learn from one another, exchange practical experiences, reflect on instructional challenges, and develop shared approaches to improving teaching and learning. PLCs create opportunities for teachers to strengthen their efficacy beliefs by engaging in meaningful professional interactions that enhance their ability to respond to diverse learner needs, design effective learning experiences, and manage the complexities associated with competency-based instruction. Therefore, the effectiveness of the Standards-Based Curriculum is closely linked to the extent to which schools provide contexts that foster professional collaboration, shared learning, and continuous improvement among teachers. In effect, the study establishes that strong professional learning communities contribute significantly to building teachers' capacity to confidently implement learner-centred practices and support improved educational experiences within Ghanaian Senior High Schools.

5.2 Recommendations

Based on the findings of the study, it is recommended that the Ghana Education Service (GES), through Regional and District Education Directorates and Senior High School administrators, should strengthen professional learning communities as platforms for continuous teacher learning and collaboration. PLC activities should emphasise meaningful professional interactions, including collaborative problem-solving, sharing of instructional experiences, peer feedback, reflective discussions, and joint examination of teaching and learning challenges. Again, Senior High School heads and school leadership teams should create more opportunities for teachers to participate meaningfully in leadership and decision-making processes related to curriculum implementation. Leadership involvement should extend beyond administrative participation to include instructional discussions and collaborative processes that directly support



teachers' classroom practices under the Standards-Based Curriculum. Furthermore, Senior High School administrators, in collaboration with teachers and departmental heads, should promote a professional culture characterised by trust, respect, open communication, and collective responsibility among teachers. Strong professional relationships provide teachers with opportunities to openly discuss challenges, seek support from colleagues, exchange effective practices, and reflect on their teaching experiences, which are essential for successful SBC implementation. Finally, the Ghana Education Service and Senior High School administrators should ensure that professional learning activities are supported by appropriate organisational structures that enable continuous teacher collaboration and professional growth. Providing conducive conditions for collaboration, professional learning opportunities, and access to necessary instructional support systems can enhance teachers' ability to design learner-centred lessons, address diverse learner needs, and implement the competency-based expectations of the Standards-Based Curriculum effectively.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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