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School Learning Action Cell (Slac): Its Relationship on The Professional Development of Mathematics Teachers In Southwest District, Butuan City

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Abstract: *This descriptive-correlational study examined the relationship between School Learning Action Cell (SLAC) implementation and the professional development of 40 mathematics teachers (20 elementary, 20 secondary) in Butuan City's southwest district. A validated questionnaire assessed SLAC implementation levels and its impact on teachers' subject matter mastery, pedagogical skills, assessment strategies, and professional ethics. Weighted mean and Spearman correlation (ρ) were used for analysis. Results showed a high level of SLAC implementation and a significant positive influence on all aspects of teachers' professional development. Teachers reported improved understanding of math concepts, enhanced teaching abilities, increased confidence, and better ability to address misconceptions due to SLAC. Pedagogical skills, including teaching strategies, effective methods, and classroom management, were also significantly improved. SLAC positively influenced assessment skills and professional ethics. Correlation analysis revealed a significant positive relationship between SLAC implementation and assessment skill development. Significant positive correlations were also found during LAC sessions between SLAC implementation and the development of pedagogical and assessment skills. Post-LAC activities further enhanced pedagogical skills, assessment skills, and professional ethics. In conclusion, SLAC implementation positively impacts the professional growth of mathematics teachers, improving their content knowledge, teaching practices, assessment strategies, and professional conduct.*

Keywords: *School Learning Action Cell, Professional Development, Subject Matter, Mastery, Pedagogical Skills, Assessment Strategies, Professional Ethics*

I. Introduction

The quality of teaching exerts a profound influence on student learning outcomes, underscoring the critical importance of effective teaching in contemporary society. Educators must possess not only a robust foundation of content knowledge but also well-developed pedagogical skills, the capacity to differentiate instruction to meet the diverse needs of learners, and proficiency in the seamless integration of technology into both instructional delivery and assessment practices (Darling-Hammond, et al., 2020). Furthermore, teachers are increasingly expected to cultivate inclusive classroom environments that thoughtfully address the varied requirements of all students, including those with disabilities, individuals from diverse cultural backgrounds, and English language learners (García & Kleifgen, 2020).

Continuous professional growth is an indispensable element for teachers to refine their instructional techniques, glean insights from their experiences, engage in collaborative exchanges with colleagues to disseminate best practices, and adapt proactively to the constantly evolving educational landscape (Danielson, 2022). This ongoing development necessitates staying informed about current research in pedagogy, acquiring a comprehensive understanding of the latest educational technologies, and cultivating culturally responsive teaching practices (Ladson-Billings, 2021).

However, several significant challenges impede this essential growth. These include constraints on time, limited access to high-quality resources, insufficient administrative support, resistance to adopting new approaches, and the escalating demands placed upon teachers (OECD, 2019). The Philippine educational system grapples with persistent issues such as overcrowded classrooms, a shortage of qualified educators, and constrained resources allocated for professional development initiatives (UNESCO, 2021). Teachers in the Philippines face considerable time pressures due to factors like large class sizes and extensive administrative responsibilities, which can significantly restrict their opportunities for professional development (Orale, 2020).

Limited access to relevant instructional materials and resources presents a considerable obstacle for teachers striving to implement innovative teaching methodologies, particularly in regions such as Caraga (UNESCO, 2021). This challenge is likely exacerbated by the region's rich and diverse cultural context, which necessitates the adoption of

culturally responsive teaching practices. While specific data for the Caraga region may be limited, national studies consistently highlight the importance of culturally relevant pedagogy in fostering improved student outcomes (Ladson-Billings, 2021), suggesting a clear need for sustained professional development and robust support for teachers in Caraga to cultivate these crucial skills.

These challenges are also evident within the Southwest District of the Butuan City Division, where educators, and particularly Mathematics teachers, encounter issues such as inadequate financial support for professional development activities, demanding workloads that severely limit time for professional growth, uneven access to high-quality professional development opportunities, technological barriers that hinder innovation, and a lack of consistent and sustained support for pedagogical innovation. Despite the mandated implementation of School Learning Action Cells (SLACs) as stipulated in DepEd Order No. 35, s. 2016, and subsequently reiterated in DepEd Order No. 34, s. 2022, these underlying challenges persist.

To effectively address these multifaceted challenges and cultivate a culture of continuous improvement within the teaching profession, the Department of Education (DepEd) has placed significant emphasis on the establishment and utilization of professional learning communities. DepEd Order No. 35, s. 2016, formally institutionalized SLACs as school-based communities of practice specifically designed to support the ongoing professional development of teachers.

SLACs serve as valuable platforms for collaborative learning, collective problem-solving, and reflective practice, with a primary focus on curriculum implementation, instructional strategies, and assessment practices within the framework of the K to 12 program (Republic Act 10533). SLAC sessions prioritize critical topics such as addressing learner diversity and promoting inclusion, deepening content knowledge and pedagogical approaches, refining assessment techniques, integrating 21st-century skills into instruction, and effectively contextualizing the curriculum to local needs (Valdehueza et al., 2023). Through active engagement in collaborative planning and the practical implementation of agreed-upon actions, SLACs aim to enhance teachers' professional knowledge and skills, ultimately leading to improved student learning and holistic development.

However, the implementation of SLACs within the Southwest District of the Butuan City Division has encountered several operational challenges. These include inconsistent attendance among teachers, often attributed to their already demanding workloads, limited access to current and updated instructional materials that can inform their practice, and insufficient technological resources necessary to effectively support innovative teaching practices. Furthermore, there is a noted lack of consistent monitoring and rigorous evaluation of SLAC sessions, which consequently hinders the overall effectiveness and impact of these crucial professional development activities.

Consequently, this study was undertaken to specifically investigate the influence of SLACs on the professional development of teachers, with a particular focus on Mathematics teachers, within the Southwest District of Butuan City Division. A key objective of this research was to identify the specific challenges that have not been adequately addressed through the current implementation of SLACs and to propose evidence-based recommendations aimed at enhancing the overall effectiveness and sustainability of these vital professional learning communities.

II. Method

This study employed a descriptive-correlational research design to investigate the relationship between participation in School Learning Action Cells (SLACs) and the professional development of mathematics teachers in Butuan City, Agusan del Norte, Philippines. This design was chosen to describe the level of SLAC implementation and teachers perceived professional development in subject matter mastery, pedagogical skills, assessment strategies, and professional ethics, while also exploring the correlations between SLAC participation and these areas. The research was conducted within the Southwest District of the Butuan City Division, a locale selected due to the researcher's familiarity and access, encompassing six public schools (Kinamlutan Elementary and National High School, La Trinidad Integrated Elementary and Secondary School, and San Vicente Elementary and National High School). These schools, serving diverse student populations in urban and semi-urban settings, provided a range of perspectives from both elementary and secondary mathematics teachers.

The population for this study comprised all mathematics teachers within the Southwest District of Butuan City Division during the school year 2023–2024. The respondents were selected from this population using a purposive sampling design. This sampling method specifically targeted teachers actively involved in School Learning Action Cells (SLACs) within the six identified public schools of the Southwest District. The focus on actively participating mathematics teachers at both elementary and secondary levels allowed for a direct examination of the impact of SLAC engagement on various facets of their professional growth, including content knowledge, pedagogical skills, teaching strategies, and professional ethics.

The six participating schools within the Southwest District offered a diverse context for the study. Kinamlutan Elementary and National High School, situated in a more dispersed residential area, potentially benefit from strong community support. La Trinidad Integrated Elementary and Secondary School, located centrally near the sports complex, might have better access to resources. San Vicente Elementary and National High School, near a commercial area and the Diversion Road, could offer opportunities for community partnerships. The inclusion of integrated schools provided insights into curriculum continuity. The varied locations and likely resource levels of these schools contributed to a richer understanding of how SLACs influence teacher professional development across different educational settings within the district.

III. Results and Discussion

This chapter presents the study's findings on the influence of School Learning Action Cells (SLACs) on mathematics teachers' professional development in Butuan City's Southwest District. The data analysis and interpretation are structured sequentially, examining: 1) SLAC implementation levels before, during, and after LAC sessions; 2) the perceived impact of SLACs on teachers' subject mastery, pedagogical skills, assessment strategies, and professional ethics; 3) the relationship between SLAC implementation levels and their perceived influence on professional development; and 4) data-driven enhancements to SLAC implementation aimed at maximizing its effectiveness for mathematics teachers.

Level of implementation of SLAC in Southwest Butuan District

This section presents the findings regarding the level of SLAC implementation in the Southwest Butuan District. Data were collected on teacher perceptions of SLAC activities before, during, and after the LAC sessions.

Level of Implementation of SLAC in The Southwest Butuan District in terms of Before the SLAC session

Indicators	**Wtd Mean**	**SD**	**Verbal Description**	***Implementation Level***
1. *Orientation and/or meeting on SLAC sessions is conducted*	3.93	.267	Always	*Fully Implemented*
2. *Training needs are assessed anchored on the DepEd Order No. 35 series 2016 and RPMS-PPST.*	3.95	.221	Always	*Fully Implemented*
3. *Presence of SLAC plan that includes*				
3.1 Prioritization of topics,	3.88	.335	Always	*Fully Implemented*
3.2 Schedules and	3.90	.304	Always	*Fully Implemented*
3.3 Formation of SLAC (SLac leader, SLAC Facilitator, SLac documenter,etc)	3.90	.304	Always	*Fully Implemented*
4. *Resources (includes learning materials and/or ICT support, proper venue, etc.) are identified.*	3.88	.335	Always	*Fully Implemented*
5. *Work assignment and implementation norms are specified.*	3.90	.304	Always	*Fully Implemented*
Overall Weighted Mean	**3.90**	**.206**	**Always**	***Fully Implemented***

Legend: 1-00-1.49-Never/Not Implemented; 1.50-2.49-Rarely/ Partially Implemented; 2.50-3.49-Sometimes/Implemented; 3.50-4.00-Always/Fully Implemented

The overall weighted mean of 3.90, with a verbal description of "Always" and an implementation level of "Fully Implemented," demonstrates a strong and consistent perception among mathematics teachers that the pre-SLAC activities are being conducted effectively. This high average suggests a well-organized and structured approach to planning and preparing for SLAC sessions. It's crucial to acknowledge the significance of this high overall mean, as it indicates that the foundational aspects of the SLAC process are executed with remarkable effectiveness. As highlighted in Department of Education (DepEd) Order No. 35, s. 2016, the Learning Action Cell (LAC) is a key component of the

K-12 Basic Education Program's School-Based Continuing Professional Development strategy, emphasizing the need for ongoing support and training for teachers. A weak foundation could compromise the efficacy of subsequent SLAC stages.

The highest mean of 3.95, associated with the item "Training needs are assessed anchored on the DepEd Order No. 35 series 2016 and RPMS-PPST," indicates that teachers strongly believe their training needs are being accurately identified and addressed. This alignment with DepEd policies and performance standards with the SLAC sessions are relevant and responsive to the teachers' professional development requirements. As Silva (2021) found in her study, there is a significant need for professional development in areas such as learner diversity, content and pedagogy, and assessment, highlighting the importance of targeted programs that address specific teacher needs. This is very important, because it shows that the SLAC programs are being designed with the teachers needs in mind, and that the programs are not just random meetings.

While the lowest mean of 3.88 was observed for the indicator "Presence of SLAC plan that includes Prioritization of topics," potentially suggesting a slightly lower level of perceived implementation compared to other pre-SLAC activities. These results indicate that some teachers in our district may be overwhelmed with administrative tasks, leaving them little time to prepare or prioritize meaningful topics. Additionally, the topics are often generic due to the varying levels of subject mastery among participants. Another contributing factor could be that participants do not feel involved in the topic selection process, which may lead them to undervalue or deprioritize it. For example, most topics are chosen solely by the school head without seeking input or suggestions from the teachers.

Another lowest mean score of 3.88, with the indicator resources (includes learning materials an/or ICT support, proper venue,etc) are identified. Due to the fact that some of the schools in our district has lack of ICT support and learning materials due to the lack of funds. As Kholid et al. (2023) identified, inadequate resources can be a barrier to developing technological, pedagogical, and content knowledge among mathematics teachers, reinforcing the need for attention to resource availability. The consistently high ratings across all indicators suggest that the Southwest Butuan District is effectively laying the groundwork for successful SLAC sessions.

The slight variations in the means highlight potential areas for improvement. While the overall implementation is strong, focusing on enhancing the prioritization of topics and the provision of resources could further optimize the pre-SLAC process. It is very important to remember that these results are based on the perceptions of the teachers. So, while the results are very useful, it is also important to observe the actual SLAC meetings, and to measure the actual effects of the SLAC meetings on the teachers' professional development. The importance of sustained and well-designed professional development, as discussed by Kraft and Blazar (2018) and Garet et al. (2002), further emphasizes the potential impact of these SLAC activities on teacher practices and student outcomes.

Level of Implementation of SLAC in the Southwest Butuan District in terms of During the SLAC session

Having examined the pre-session activities and preparations, this section analyzes the implementation of SLACs during the sessions themselves. Table 3 presents the Level of Implementation of SLAC in the Southwest Butuan District during the SLAC Session.

Level of Implementation of SLAC in the Southwest Butuan District in terms of During the SLAC session

Indicators	**Wtd Mean**	**SD**	**Verbal Description**	***Implementation Level***
1. *Topics are congruent with the themes of the K to 12 Basic Education Program as stipulated in RA 10533 and in various policies of Deped.*	3.93	.267	Always	*Fully Implemented*
2. *Collective group discussions among SLAC leaders, facilitators, and members are evident in exploring interventions to address identified need.*	3.90	.304	Always	*Fully Implemented*
3. *Human and/or material resources are available and extensively utilized in the conduct of SLAC sessions.*	3.93	.267	Always	*Fully Implemented*
4. *Action planning and ways forward are established and shared.*	3.90	.304	Always	*Fully Implemented*

Overall Weighted Mean	**3.91**	**.223**	**Always**	***Fully Implemented***

Legend: 1-00-1.49-Never/Not Implemented; 1.50-2.49-Rarely/ Partially Implemented; 2.50-3.49-Sometimes/Implemented; 3.50-4.00-Always/Fully Implemented

Mathematics teachers in the Southwest Butuan District perceive SLAC session activities as highly effective ("Fully Implemented," overall mean 3.91), indicating a structured environment for professional growth. High agreement (mean 3.93) exists regarding the alignment of topics with the K to 12 program and the availability/utilization of resources, the latter likely due to mandatory attendance despite potential shortages. Lower agreement (mean 3.90) was noted for "Collective group discussions...are evident" and "Action planning and ways forward are established and shared," possibly due to teachers' busy schedules hindering in-depth discussions and potential issues with follow-up on action plans. Despite these lower ratings, the overall perception suggests SLAC sessions are not merely discussions but aim for practical classroom application, a key characteristic of effective professional development.

The data indicate highly functional SLAC sessions marked by curriculum alignment, collaborative discussion, resource availability, and action planning, fostering a dynamic learning environment for teachers. This suggests that the "During" phase effectively supports teacher growth through collaboration, knowledge sharing, and practical strategy development. However, a complete picture of SLAC effectiveness requires analyzing the "Before" and "After" phases, along with the impact on professional development domains.

Level of Implementation of SLAC in the Southwest Butuan District in terms of After the LAC session

Having examined the activities and interactions that characterize the during phase of SLAC sessions, the discussion in this section focuses on translating learning into action and long-term impact of their teaching. This section will explore the level of implementation of SLAC activities after the LAC session.

Level of Implementation of SLAC in the Southwest Butuan District in terms of After the LAC session

1.	***SLAC plan is checked for evidences of progress to ensure the relevance and quality of its content.***	**3.85**	**.362**	**Always**	***Fully Implemented***
2.	*Narrative reports are obtained and analyzed to provide SMART interventions*	3.78	.423	Always	*Fully Implemented*
3.	*Evaluation tools are employed to frequently assess the strong points and gaps as a basis for improvement.*	3.75	.439	Always	*Fully Implemented*
4.	*SLAC session gains of the participants are used to evaluate*				
	4.1 *the activity's impacts,*	3.90	.304	Always	*Fully Implemented*
	4.2 *the best practices and*	3.90	.304	Always	*Fully Implemented*
	4.3 *innovations as inputs for pedagogical practices.*	3.93	.267	Always	*Fully Implemented*
5.	*Implementation review is undertaken to communicate the extent success…*	3.83	.385	Always	*Fully Implemented*
6.	*SLAC members are expected to implement the proposed strategies or activities in the classroom or school.*	3.85	.362	Always	*Fully Implemented*
7.	*SLAC members report back on the success of these activities in future SLAC sessions.*	3.78	.423	Always	*Fully Implemented*
8.	*SLAC Facilitators monitor this activity and evaluate how far they are contributing to..*	3.85	.362	Always	*Fully Implemented*

9. *SLAC Leaders monitor these activities and evaluate how far they are contributing…*	3.80	.405	Always	*Fully Implemented*
10. *School heads/ Principals support the SLACs by doing class observation and encourage teachers to continually…*	3.90	.304	Always	*Fully Implemented*
11. *SLAC members are expected to implement the proposed strategies or activities in their classroom or school.*	4.00	.000	Always	*Fully Implemented*
12. *SLAC members report back on the success of these activities in future SLAC sessions.*	3.85	.362	Always	*Fully Implemented*
13. *SLAC Facilitators monitor this activity and evaluate how far they are contributing …*	3.95	.221	Always	*Fully Implemented*
14. *SLAC Leaders monitor these activities and evaluate how far they are contributing ...*	3.95	.221	Always	*Fully Implemented*
15. *School heads/ Principals support the SLACs by* 15.1 *Doing class observation and*	3.98	.158	Always	*Fully Implemented*
15.2 Encouraging teachers to continually improve instructions so that students learning will also improve.	3.93	0.267	Always	*Fully Implemented*
Overall Weighted Mean	**3.88**	**0.201**	**Always**	***Fully Implemented***

Legend: 1-00-1.49-Never/Not Implemented; 1.50-2.49-Rarely/ Partially Implemented; 2.50-3.49-Sometimes/Implemented; 3.50-4.00-Always/Fully Implemented

The overall weighted mean of 3.88, accompanied by the verbal description "Always" and an implementation level of "Fully Implemented," signifies that mathematics teachers in the Southwest Butuan District hold a strong perception of high effectiveness in the conduct of post-LAC activities. This robust rating suggests a commendable commitment to the crucial stages of monitoring, evaluating, and actively implementing the outcomes and insights derived from the SLAC sessions.

Notably, the highest mean score of 4.00 was recorded for the statement, "SLAC members are expected to implement the proposed strategies or activities in their classroom or school." This exceptionally high level of agreement underscores the fundamental design and perceived purpose of School Learning Action Cells (SLACs) as a mechanism for tangible improvements in teaching and learning within the immediate school environment. SLAC participants clearly recognize the direct and primary objective of these collaborative endeavors as the practical application of discussed and agreed-upon strategies and activities within their own classrooms or the wider school setting. This strong affirmation, reflected in the perfect mean score, highlights the emphasis on translating professional learning into concrete action, a cornerstone of impactful professional development. As highlighted by Kraft and Blazar (2020), the integration of goal setting and feedback mechanisms is paramount in maximizing the positive effects of professional development initiatives.

Conversely, the lowest mean score of 3.75 was observed for the indicator, "Evaluation tools are employed to frequently assess the strong points and gaps as a basis for improvement." This lower rating suggests a potential perception among SLAC members that the utilization of evaluation tools for regular assessment of strengths and areas for growth might not be as consistent or frequent as desired. This could stem from various factors, including time constraints faced by educators, a lack of readily available or suitably designed evaluation instruments, or perhaps a lower priority assigned to frequent and systematic evaluation processes. This finding aligns with the critical importance of ongoing evaluation emphasized by Garet et al. (2020), who assert that effective professional development necessitates a continuous and iterative cycle encompassing planning, implementation, rigorous evaluation, and subsequent refinement based on the gathered data.

Transition to the Influence of SLACs on Subject Matter Mastery:

Having thoroughly examined the perceived implementation of SLAC activities across its distinct phases—pre-LAC, during LAC, and post-LAC—the analysis and discussion now transition to explore the perceived influence of these SLAC implementations on the professional development of mathematics teachers. Specifically, the subsequent section will delve into the impact of SLAC participation on teachers' self-perceived mastery of their subject matter.

Extent of Perception of SLAC on Mathematics Teachers' Professional Development in terms of Mastery of Subject Matter

Indicators	*Wtd Mean*	*SD*	*Verbal Description*	*Implementation Level*
1. *The SLAC has improved my understanding of mathematical concepts.*	3.93	.267	Strongly Agree	*Very High*
2. *The SLAC has enhanced my ability to teach mathematical concepts.*	3.85	.362	Strongly Agree	*Very High*
3. *My participation in SLAC influenced my confidence in delivering mathematics lesson.*	3.80	.405	Strongly Agree	*Very High*
4. *The SLAC contributed my ability to address students questions and misconceptions in mathematics*	3.85	.362	Strongly Agree	*Very High*
Overall Weighted Mean	*3.86*	*.286*	*Strongly Agree*	*Very High*

Legend: 1-00-1.49-Strongly Disagree/Very Low; 1.50-2.49-Disagree/Low; 2.50-3.49-Agree/High; 3.50-4.00-Strongly Agree/Very High

The overall weighted mean of 3.86, with a verbal description of "Strongly Agree" and an implementation level categorized as "Very High," clearly indicates that mathematics teachers in the Southwest Butuan District perceive a substantial and positive influence of School Learning Action Cells (SLACs) on their mastery of subject matter. This finding suggests that participation in these collaborative learning communities is considered a valuable and effective mechanism for enhancing teachers' content knowledge and their pedagogical content knowledge specifically related to mathematics.

Notably, the highest mean score of 3.93 was recorded for the statement, "The SLAC has improved my understanding of mathematical concepts." This strong level of agreement signifies that teachers overwhelmingly feel their foundational knowledge and comprehension of core mathematical concepts are significantly strengthened through their engagement in SLAC activities. SLACs appear to provide crucial opportunities for teachers to deepen their conceptual understanding, potentially through engaging in in-depth discussions of challenging mathematical topics, exploring diverse representations of mathematical ideas, or facilitating a thorough review of fundamental mathematical principles. This finding strongly aligns with the research of Hill et al. (2020), who have consistently emphasized the critical importance of content-focused professional development initiatives in effectively improving teachers' subject matter knowledge.

Conversely, the lowest mean score of 3.80 was observed for the statement, "My participation in SLAC influenced my confidence in delivering mathematics lessons." This slightly lower rating might be attributed to the possibility that the primary focus of the SLAC sessions, as perceived by the teachers, was not always directly and specifically centered on mathematics pedagogy or mathematics-specific content. Consequently, the training sessions within the SLAC framework, which may have addressed more general teaching methodologies, classroom management strategies applicable across subjects, or even content from other subject areas, might have had a less direct and immediate impact on the confidence levels of mathematics teachers in delivering their specific subject matter. Furthermore, it is plausible that a significant portion of the mathematics teachers in the district already possessed a relatively high level of confidence in their instructional abilities prior to their participation in SLACs, thus potentially limiting the perceived influence of SLACs on this particular aspect of their professional development.

In conclusion, the collective data presented in Table 5 strongly suggests that SLACs are perceived as exerting a very high degree of positive influence on mathematics teachers' mastery of subject matter. These findings underscore the significant value of SLACs as a vital professional development tool for effectively strengthening teachers' content knowledge and their specialized pedagogical content knowledge within the domain of mathematics education.

Extent of Perception of SLAC on Mathematics Teachers' professional development in terms of Pedagogical Skills

Building upon the perceived influence of SLACs on teachers' mastery of subject matter, the analysis and discussion turns to pedagogical skills. This section examines how teachers perceive SLAC participation as impacting their ability to effectively teach mathematics.

Extent of Perception of SLAC on Mathematics Teachers' professional development in Terms of Pedagogical Skills

Indicators	Wtd Mean	SD	Verbal Description	*Implementation Level*
1. *The SLAC has improved my knowledge of diverse teaching strategies in mathematics.*	3.85	.362	Strongly Agree	*Very High*
2. *The SLAC has enhanced my ability to implement effective teaching method in my mathematics classroom.*	3.78	.423	Strongly Agree	*Very High*
3. *The SLAC influenced my ability to adapt teaching methods to meet diverse student needs.*	3.85	.362	Strongly Agree	*Very High*
4. *The SLAC contributed my ability to use technology effectively in teaching mathematics.*	3.85	.362	Strongly Agree	*Very High*
5. *The SLAC has enhanced my classroom management skills.*	3.85	.362	Strongly Agree	*Very High*
Overall Weighted Mean	**3.84**	**.271**	**Strongly Agree**	***Very High***

Legend: 1-00-1.49-Strongly Disagree/Very Low; 1.50-2.49-Disagree/Low; 2.50-3.49-Agree/High; 3.50-4.00-Strongly Agree/Very High

The overall weighted mean of 3.84, coupled with consistently high means across all indicators, strongly indicates that teachers "Strongly Agree" that School Learning Action Cells (SLACs) exert a "Very High" influence on their pedagogical development. This finding underscores the perception that participation in SLACs serves as a valuable and effective avenue for enhancing mathematics teachers' instructional skills and strategies.

Notably, the highest mean scores of 3.85 were recorded for several key aspects of pedagogical skills: "The SLAC has improved my knowledge of diverse teaching strategies in mathematics," "The SLAC influenced my ability to adapt teaching methods to meet diverse student needs," "The SLAC contributed to my ability to use technology effectively in teaching mathematics," and "The SLAC has enhanced my classroom management skills." These uniformly high means signify a strong collective perception that SLACs provide substantial benefits across a comprehensive range of pedagogical competencies.

The high mean for improved knowledge of diverse teaching strategies aligns with the research of Borko et al. (2021), who emphasize the importance of professional development programs that expose teachers to a wide array of pedagogical approaches. The collaborative and peer-learning environment inherent in SLACs likely facilitates this exposure, allowing teachers to learn from each other's experiences, share successful strategies, and gain insights into varied instructional approaches through discussions and practical activities. Similarly, the high mean for adapting teaching methods to meet diverse student needs resonates with Ladson-Billings' (2019, 2021) seminal work on culturally relevant pedagogy, which underscores the critical importance of tailoring instruction to the unique needs of all learners. The sharing of concrete examples and practical strategies for differentiation within SLAC sessions likely contributes significantly to this perceived improvement.

Furthermore, the high mean for technology integration is consistent with the findings of Ertmer and Ottenbreit-Leftwich (2019) and Morris (2021), who have explored the factors contributing to effective technology integration in education. It also aligns with the work of Thurm et al. (2023), who emphasize the necessity of preparing mathematics

teachers for the demands of the digital age. The collaborative exploration of technology tools and their application within SLACs likely enhances teachers' confidence and skills in this area. Likewise, the high mean for enhanced classroom management skills aligns with research on teacher learning communities (Siemens & Downes, 2005), where shared experiences and collaborative problem-solving contribute to professional growth. SLAC sessions likely provide a platform for discussing classroom management strategies, sharing effective techniques, addressing specific challenges, and introducing new approaches in a supportive peer environment.

However, the lowest mean score of 3.78 was recorded for the statement, "The SLAC has enhanced my ability to implement effective teaching methods in my mathematics classroom." This slightly lower rating suggests that while teachers may acquire knowledge about effective methods within SLAC sessions, the actual implementation of these methods in their own mathematics classrooms can be influenced by a multitude of factors that are not directly addressed by the SLAC framework. These factors might include curriculum constraints, limitations on instructional time, the availability of necessary resources, or the varying levels of preparedness among students. This highlights the critical importance of bridging the gap between theoretical knowledge and practical application, a key element of effective professional development emphasized by Darling-Hammond et al. (2020). Moreover, this focus on implementation aligns with Fullan's (1995) model of the school as a learning system, where professional development is viewed as an integral component of continuous school-wide improvement.

In summary, the data presented in Table 6 provides compelling evidence that SLACs are perceived as having a very high influence on mathematics teachers' pedagogical skills. Teachers report significant improvements in their knowledge of diverse teaching strategies, their capacity to differentiate instruction effectively, their ability to integrate technology into their teaching, and their classroom management skills. These findings further underscore the significant value of SLACs as a crucial professional development tool for enhancing teachers' instructional expertise, which is fundamentally essential for the effective implementation of various assessment approaches.

Extent of Perception of SLAC on Mathematics Teachers' Professional Development in terms of Assessment Skills

This section explores the perceived influence of SLACs on mathematics teachers' assessment skills. The analysis and discussion in this section focuses on how teachers perceive SLAC participation as contributing to their ability to design, implement, and interpret assessments that inform instructional practices and enhance student learning.

Extent of Perception of SLAC on Mathematics Teachers' Professional Development in terms of Assessment Skills

Indicators	Wtd Mean	SD	Verbal Description	*Implementation Level*
1. *The SLAC has improved my knowledge of various assessment strategies in mathematics.*	3.93	.267	Strongly Agree	*Very High*
2. *The SLAC has enhanced my ability to design effective assessment for mathematics students.*	3.95	.221	Strongly Agree	*Very High*
3. *The SLAC influenced my ability to use formative assessment techniques to form instruction.*	3.85	.362	Strongly Agree	*Very High*
4. *The SLAC contributed my ability to provide meaningful feedback to students*	3.85	.362	Strongly Agree	*Very High*
5. *The SLAC has influenced me to use assessment data to guide instructional decisions.*	3.93	.267	Strongly Agree	*Very High*
6. *The SLAC participation improved my abilty to create assessments that align with my learning objectives.*	3.95	.221	Strongly Agree	*Very High*

7. *The SLAC has influenced my ability to differentiate assessments based on students needs.*	3.95	.221	Strongly Agree	*Very High*
Overall Weighted Mean	**3.91**	**.151**	**Strongly Agree**	***Very High***

Legend: 1-00-1.49-Strongly Disagree/Very Low; 1.50-2.49-Disagree/Low; 2.50-3.49-Agree/High; 3.50-4.00-Strongly Agree/Very High

The overall weighted mean of 3.91, coupled with consistently high means across all indicators, signifies that mathematics teachers in the Southwest Butuan District "Strongly Agree" that School Learning Action Cells (SLACs) exert a "Very High" influence on their assessment practices. This robust perception underscores the value of SLAC participation as a significant resource for developing and refining essential assessment skills.

Notably, the highest mean score of 3.95 was observed for "The SLAC has enhanced my ability to design effective assessments for mathematics students." This indicates that SLAC sessions are perceived as valuable opportunities for professional development specifically focused on assessment design. The collaborative discussions within SLACs, where mathematics teachers in the district explore various assessment formats, the development and application of rubrics, and strategies for aligning assessments directly with learning objectives, appear to significantly improve their ability to create effective assessment tools. Another equally high mean of 3.95 was recorded for "The SLAC participation improved my ability to create assessments that align with my learning objectives." This likely stems from the practical sharing of concrete examples of assessment tasks and methods within SLACs, enabling teachers to learn effective techniques from their colleagues on how to translate specific learning objectives into measurable assessment items. Furthermore, "The SLAC has influenced my ability to differentiate assessments based on students' needs" also received a high mean of 3.95, likely because SLAC sessions provide a platform for teachers to share the challenges they encounter in addressing the diverse learning needs of their mathematics students. Through collaborative problem-solving, they can collectively brainstorm and discover effective strategies for differentiating assessments to accommodate these varying needs. These three highest means collectively highlight the significant perceived impact of SLACs on teachers' ability to create well-aligned and differentiated assessments, reflecting current best practices in assessment as stressed by Heritage (2019), who emphasizes the importance of formative assessment and making learning visible.

Conversely, the lowest mean score of 3.85 was observed for "The SLAC influenced my ability to use formative assessment techniques to inform instruction." This slightly lower rating might be attributed to the possibility that many mathematics teachers in the district already possess a foundational understanding and established practices in utilizing these techniques. Therefore, the SLAC's influence in this specific area might be perceived as reinforcing or refining existing skills rather than introducing entirely new capabilities. Similarly, "The SLAC contributed to my ability to provide meaningful feedback to students" also received a lower mean of 3.85. This could be because providing individualized and meaningful feedback can be particularly time-consuming, and the SLAC training might not have adequately addressed the practical challenges mathematics teachers face in effectively doing so within their existing workload and classroom constraints.

While these two lowest means potentially suggest that teachers recognize the inherent value of formative assessment and providing meaningful feedback, they may perceive a slightly less pronounced impact from SLACs in these specific areas. It is crucial to recognize that formative assessment and feedback are integral components of effective teaching, as they provide students with valuable information about their learning progress and guide necessary instructional adjustments. As emphasized by Heritage (2019), making learning visible through effective feedback and responsive teaching is essential for fostering student growth. Therefore, there is a potential opportunity for SLACs to further emphasize practical strategies for effectively implementing formative assessment techniques and providing meaningful feedback to students. This could involve exploring various readily applicable formative assessment tools and techniques, engaging in discussions about effective strategies for providing specific and actionable feedback, and examining practical approaches for utilizing assessment data to adjust instruction in real-time. This aligns with the recommendations of Kraft and Blazar (2020), who highlighted the importance of feedback as a key component of effective teacher professional development.

In conclusion, the data presented in Table 7 clearly demonstrates that SLACs are perceived as having a very high influence on mathematics teachers' assessment skills. Teachers report significant improvements in their ability to design effective assessments, align assessments with learning objectives, differentiate assessments to meet diverse student needs, and utilize assessment data to inform their instructional practices. While all areas demonstrate a strong positive influence, there is a potential opportunity to further enhance the impact of SLACs specifically on the practical application of formative assessment techniques and the provision of meaningful feedback to students.

Extent of Perception of SLAC on Mathematics Teachers' Professional Development in terms of Professional Ethics.

This section examines the perceived influence of SLACs on mathematics teachers' professional ethics. The analysis explores how teachers perceive SLAC participation as contributing to their understanding and application of ethical principles in their professional practice.

Extent of Perception of SLAC on Mathematics Teachers' Professional Development in terms of Professional Ethics

Indicators	Wtd Mean	SD	Verbal Description	*Implementation Level*
1. *The SLAC has improved my understanding of professional ethics in teaching.*	3.88	.335	Strongly Agree	*Very High*
2. *The SLAC has enhanced my ability to apply ethical principles in my teaching practice.*	3.90	.304	Strongly Agree	*Very High*
3. *The SLAC influenced my awareness of ethical issues in education*	3.93	.267	Strongly Agree	*Very High*
4. *The SLAC contributed my ability to handle ethical dilemmas in the classroom.*	3.98	.158	Strongly Agree	*Very High*
5. *The SLAC has influenced my adherence to professional standards and codes of conduct.*	3.95	.221	Strongly Agree	*Very High*
Overall Weighted Mean	**3.93**	**.148**	**Strongly Agree**	***Very High***

Legend: 1-00-1.49-Strongly Disagree/Very Low; 1.50-2.49-Disagree/Low; 2.50-3.49-Agree/High; 3.50-4.00-Strongly Agree/Very High

The overall weighted mean of 3.93, coupled with consistently high means across all indicators, strongly suggests that teachers "Strongly Agree" that School Learning Action Cells (SLACs) exert a "Very High" influence on their understanding and application of professional ethics in teaching. This indicates that participation in SLACs is perceived as a valuable and effective means for developing and refining teachers' ethical awareness and decision-making capabilities.

Notably, the highest mean score of 3.98 was observed for the statement, "The SLAC contributed to my ability to handle ethical dilemmas in the classroom." This high level of agreement likely stems from the fact that SLACs often foster a confidential and supportive environment where mathematics teachers within the district feel comfortable engaging in open discussions about sensitive and complex ethical dilemmas they have encountered or anticipate facing. This open dialogue facilitates shared reflection and valuable learning from the diverse experiences of their colleagues. Furthermore, the collaborative nature of SLACs, bringing together teachers from various backgrounds and with differing levels of experience, allows for a broader exchange of perspectives on intricate ethical issues, thereby enriching individual teachers' understanding of ethical considerations and potential strategies for effectively resolving such dilemmas. These discussions often involve the analysis of real-world case studies, the practice of ethical reasoning through role-playing scenarios, or the sharing of personal experiences related to ethical challenges in the classroom. Developing the capacity to navigate and resolve ethical dilemmas effectively is absolutely crucial for maintaining a positive, equitable, and ethical learning environment for all students. This emphasis on ethical decision-making aligns with the ethical considerations and decision-making processes thoroughly discussed by Strike and Ternasky (2020) in their scholarly work on ethics for educational leaders.

Conversely, the lowest mean score of 3.88 was observed for "The SLAC has improved my understanding of professional ethics in teaching." This slightly lower rating is likely attributable to the fact that mathematics teachers in the district typically receive some form of formal training or have already developed a foundational understanding of professional ethics through their initial teacher education programs and ongoing professional development initiatives. While SLACs undoubtedly serve to reinforce these existing ethical principles and frameworks, they might not necessarily

introduce significant new theoretical understanding of the core concepts of professional ethics. A more in-depth exploration within SLACs could involve a closer examination of relevant ethical codes of conduct specific to the teaching profession, engaging in discussions about the philosophical underpinnings of professional ethics, or analyzing the pertinent legal and policy frameworks related to ethical practice within the education sector. A stronger foundational understanding of these ethical principles could further enhance teachers' ability to thoughtfully apply ethical considerations and navigate complex ethical situations with greater confidence and clarity. This emphasis on a strong ethical foundation aligns closely with the National Education Association's (NEA) comprehensive Code of Ethics (2021), which provides a robust framework for ethical conduct within the education profession.

Having examined the perceived influence of SLACs on various aspects of mathematics teachers' professional development, the subsequent section of this chapter will now investigate whether a statistically significant relationship exists between the level of SLAC implementation (across its pre-LAC, during LAC, and post-LAC phases) and the extent to which teachers perceive SLACs as positively influencing their mastery of subject matter, pedagogical skills, assessment strategies, and professional ethics. The data presented in Table 9 will detail the findings of the Correlation Analysis conducted between the overall level of SLAC Implementation and the Perception of SLAC's Influence on Mathematics teachers within the Southwest District of Butuan City.

Correlation Analysis between SLAC Implementation and Perception on Mathematics Teachers

SLAC Implementation		**Mastery of Subject Matter**	**Pedagogical Skills**	**Assessment Skills**	***Professional Ethics***
Before SLAC Session	Correlation Coefficient	.152	.120	.326*	*.083*
	p-value	.356	.462	.040	*.612*
	Decision on H0	Do not reject Ho	Do not reject Ho	Reject Ho	*Do not reject Ho*
	Interpretation	Not significant	Not significant	Significant	*Not significant*
During SLAC Session	Correlation Coefficient	.266	.362*	.509**	*.191*
	p-value	.102	.022	.001	*.238*
	Decision on H0	Do not reject Ho	Reject Ho	Reject Ho	*Do not reject Ho*
	Interpretation	Not significant	Significant	Significant	*Not significant*
After SLAC Session	Correlation Coefficient	.305	.460**	.791**	*.498***
	p-value	.059	.003	.000	*.001*
	Decision on H0	Do not reject Ho	Reject Ho	Reject Ho	*Reject Ho*
	Interpretation	**Not significant**	**Significant**	**Significant**	***Significant***

**significant @ p<.01 *significant at p<.05

The table presents correlation coefficients (r) and their corresponding p-values to determine the statistical significance of the relationships between the implementation levels of the different phases of School Learning Action Cells (SLACs) and the perceived influence of SLACs on various aspects of mathematics teachers' professional development. This analysis focuses on each facet of professional development individually, rather than being organized by SLAC implementation phase.

Regarding Mastery of Subject Matter, the analysis reveals positive but statistically non-significant correlations with all three phases of SLAC implementation: "Before LAC Session" (r = .152, p = .356), "During LAC Session" (r = .266, p = .102), and "After LAC Session" (r = .305, p = .059). Since the p-values are all greater than the conventional significance level

of .05, the null hypothesis (no relationship between SLAC implementation and perceived mastery of subject matter) cannot be rejected for any of the three phases. While the positive correlation coefficients suggest a trend where stronger SLAC implementation across all phases tends to be associated with a greater perceived influence on teachers' subject matter knowledge, the evidence is not statistically robust enough to conclude that this relationship is significant. This implies that the observed correlations could plausibly be due to random chance. This lack of statistical significance suggests that simply having well-planned and executed SLAC sessions does not guarantee a significant perceived improvement in teachers' subject matter knowledge. Several factors might explain this, including the specific content covered in SLACs not always directly addressing teachers' specific needs, the influence of teachers' pre-existing subject matter knowledge, the level of teacher engagement during SLAC activities, the limitations of self-perception as a measure of knowledge gain, and the presence of other unmeasured factors influencing subject matter knowledge. This finding underscores the complexity of professional development, emphasizing the need to consider factors beyond just implementation fidelity, as noted by Garet et al. (2020).

For Pedagogical Skills, a statistically significant positive correlation was found between the "During LAC Session" implementation level and perceived pedagogical skills development ($r = .362$, $p = .022$). This indicates that teachers who perceived the activities and interactions during the SLAC sessions (active participation, collaborative discussions, shared lesson planning, observation of model lessons) as strong also reported a greater positive influence on their pedagogical skills. The rejection of the null hypothesis (no relationship between "During LAC Session" implementation and pedagogical skills) signifies a statistically significant relationship. Similarly, the "After LAC Session" implementation level also showed a statistically significant positive correlation with pedagogical skills ($r = .460$, $p = .003$), indicating that post-LAC activities (implementation of learned strategies, feedback, reflection, instructional adjustments) are crucial for translating SLAC learning into tangible improvements in teaching practices. The null hypothesis is also rejected here. However, the "Before LAC Session" implementation did not show a significant correlation with pedagogical skills. These findings suggest that the direct impact on pedagogical skills is more strongly linked to the active engagement and collaboration that occur during and the follow-up activities after the SLAC sessions, aligning with research on collaborative professional development (Siemens & Downes, 2005) and the importance of follow-up support (Kraft & Blazar, 2020).

Assessment Skills demonstrated the strongest and most consistent statistically significant positive correlations with all SLAC implementation phases: "Before LAC Session" ($r = .326$, $p = .040$), "During LAC Session" ($r = .509$, $p = .001$), and "After LAC Session" ($r = .791$, $p < .001$). The rejection of the null hypothesis in all three cases strongly indicates a real relationship between SLAC implementation and improvements in teachers' assessment skills. The correlation with the "Before LAC Session" suggests that planning and preparation play a role. The stronger correlation with the "During LAC Session" highlights the importance of collaborative activities and discussions related to assessment. The strongest correlation with the "After LAC Session" underscores the critical role of implementing new assessment strategies, reflecting on their results, and sharing experiences. This consistent significance across all phases emphasizes the need for a comprehensive approach to SLAC implementation for developing assessment skills, aligning with the growing emphasis on assessment in education (Heritage, 2019).

Regarding Professional Ethics, the "Before LAC Session" implementation did not show a significant correlation ($r = .083$, $p = .612$). The "During LAC Session" implementation showed a positive but not statistically significant correlation ($r = .191$, $p = .238$). However, the "After LAC Session" implementation level showed a statistically significant positive correlation with professional ethics ($r = .498$, $p = .001$). This indicates that post-LAC activities, such as the implementation of learned ethical principles, reflection on ethical dilemmas, and feedback on ethical conduct, are crucial for translating SLAC learning into tangible improvements in teachers' understanding and application of professional ethics. This highlights the importance of reflection and practical application in developing teachers' ethical decision-making and professional conduct, aligning with the emphasis on ethical considerations in education (Strike & Ternasky, 2020) and the need for practical application in professional development (Kraft & Blazar, 2020). In summary, while SLACs can be effective in developing professional ethics, the key appears to be the post-LAC activities.

IV. Summary

This chapter serves as the culmination of the study, providing a comprehensive summary of the key findings derived from the data analysis. It meticulously draws well-substantiated conclusions based on the evidence presented and culminates in the formulation of specific and actionable recommendations aimed at enhancing the effectiveness of School Learning Action Cell (SLAC) implementation within the Southwest Butuan District. The central focus of this research was to thoroughly investigate several critical aspects: the current level of SLAC implementation as perceived by mathematics teachers, the nature and extent of the relationship between SLAC participation and their professional

development across key domains, the correlation between the rigor of SLAC implementation and its perceived influence on teacher growth, and the identification of potential data-driven enhancements that could optimize the SLAC program for greater impact.

The continuous professional development of teachers is a cornerstone of educational improvement, playing a vital role in enhancing their knowledge, refining their skills, and evolving their instructional practices, ultimately leading to improved student learning outcomes. [1] School Learning Action Cells (SLACs) represent a widely adopted professional development model intentionally designed to cultivate a collaborative and contextually relevant environment conducive to sustained teacher growth. This study specifically investigated the intricate relationship between SLAC participation and the professional development of mathematics teachers within the Southwest District of Butuan City. The research focused on a comprehensive examination of the level of SLAC implementation across its distinct phases (before, during, and after sessions), the perceived influence of SLACs on various critical aspects of teacher professional development (including mastery of subject matter, pedagogical skills, assessment strategies, and professional ethics), the correlation between the rigor of SLAC implementation and its perceived impact on teacher growth, and the identification of potential data-driven enhancements to optimize SLAC implementation for greater effectiveness.

V. Findings

1. Teachers within the Southwest Butuan District reported a high level of implementation across all phases of School Learning Action Cell (SLAC) sessions – pre-session planning, activities during the sessions, and post-session follow-up. The high overall weighted means across these phases indicate a strong adherence to Department of Education (DepEd) policies and an effective execution of the SLAC program as designed. This suggests a commendable level of fidelity in the delivery of the SLAC framework within the district, with the core components being consistently applied. While the overall implementation was perceived positively, the study identified specific areas with potential for minor enhancements, including resource allocation, the process of prioritizing topics for SLAC sessions, the utilization of evaluation practices to inform improvement, and the facilitation of robust collaborative discussions among participants.

2. Mathematics teachers in the Southwest Butuan District perceived SLAC participation as having a very high positive influence on their professional development across all four measured domains: mastery of subject matter, pedagogical skills, assessment strategies, and professional ethics. Teachers reported significant improvements in these areas as a result of their involvement in SLACs. However, the study also noted slightly lower perceived impacts in more specific areas such as confidence in delivering mathematics lessons, the practical implementation of newly learned teaching methods in the classroom, the effective use of formative assessment techniques and the provision of meaningful feedback to students, and the development of a foundational theoretical understanding of professional ethics. These areas represent potential targets for more focused enhancement within the SLAC program.

3. The study revealed statistically significant positive correlations between specific phases of SLAC implementation and particular aspects of mathematics teachers' professional development. Notably, assessment skills demonstrated the strongest and most consistent positive correlations with all three SLAC phases (before, during, and after), with the most robust relationship observed between assessment skills development and the "After" phase of SLAC implementation ($r = .791$, $p < .001$). Pedagogical skills also showed statistically significant positive correlations with both the "During" phase ($r = .362$, $p = .022$) and the "After" phase ($r = .460$, $p = .003$). Furthermore, professional ethics exhibited a significant positive correlation with the "After" phase of SLAC implementation ($r = .498$, $p = .001$). While positive correlations were observed between the level of SLAC implementation across all phases and teachers' perceived mastery of subject matter, these relationships did not reach the threshold of statistical significance in this study.

4. Based on the comprehensive findings of this research, the study proposed several targeted enhancements to the implementation of SLACs within the Southwest Butuan District. These recommendations include: strengthening the focus on subject matter knowledge through the incorporation of targeted content-specific sessions, the provision of content-specific resources, and the utilization of diagnostic assessments to identify specific learning needs; enhancing the quality and impact of during-session activities through the implementation of more structured collaboration protocols, the utilization of expert facilitation to guide discussions and activities, and a stronger emphasis on the practical application of learned concepts and strategies; emphasizing the critical role

of post-LAC activities and providing robust support through implementation support mechanisms, opportunities for reflective practice, the establishment of effective feedback mechanisms, and the encouragement of teacher-led action research projects; strategically integrating technology into SLACs through the development of technology-focused sessions and the provision of adequate technical support to facilitate technology integration in teaching practices; and actively promoting ethical reflection and application through mentorship programs specifically focused on ethical conduct and decision-making in educational contexts.

VI. Conclusions

Based on the comprehensive findings of this study, the following key conclusions are drawn regarding the implementation and impact of School Learning Action Cells (SLACs) in the Southwest Butuan District:

1. The consistently high perception of full SLAC implementation across all phases (pre-session planning, activities during sessions, and post-session follow-up) signifies a robust and well-structured professional development program within the Southwest Butuan District. This strong adherence to Department of Education (DepEd) policies and the effective implementation strategies employed indicate that the district has successfully established a foundational framework that effectively supports teacher growth. However, the identified minor areas for potential improvement, such as resource allocation, the prioritization of topics for SLAC sessions, the utilization of evaluation practices, and the facilitation of collaborative discussions, underscore the ongoing need for refinement to ensure that SLACs achieve their maximum potential impact. Strategically addressing these specific areas will further strengthen the program's efficacy and ensure that it continues to effectively meet the evolving professional development needs of mathematics teachers within the district.
2. The overwhelmingly positive perceived influence of SLACs on mathematics teachers' professional development across all measured domains – encompassing subject matter mastery, pedagogical skills, assessment strategies, and professional ethics – unequivocally confirms the significant value and effectiveness of the program. The reported enhancements in these critical areas underscore the success of SLACs in fostering teacher growth and improving instructional practices within the district. While the overall impact is highly positive, the study's identification of slightly lower perceived impact in specific sub-areas, including confidence in lesson delivery, the practical implementation of teaching methods in the classroom, the effective use of formative assessment and feedback techniques, and the development of a foundational theoretical understanding of professional ethics, suggests that targeted interventions or strategic adjustments to SLAC content and delivery could further enhance its overall effectiveness. By focusing on these specific areas, the district can ensure that SLACs provide comprehensive and well-rounded support, effectively addressing the full spectrum of mathematics teachers' professional development needs.

3. The statistically significant correlations observed between the "After" phase of SLAC implementation and several key professional development domains – specifically assessment skills, pedagogical skills, and professional ethics – emphatically highlight the crucial and often underestimated role of post-session activities in the professional growth process. The study's findings underscore that it is insufficient for teachers to merely attend SLAC sessions. Instead, the real and lasting learning and professional growth occur when teachers are provided with meaningful opportunities to actively implement learned strategies within their own classrooms, engage in critical reflection on their practical experiences, and receive timely and constructive feedback on their efforts. These well-designed and supported post-session activities are therefore essential for effectively translating the knowledge and skills gained during SLAC sessions into tangible and sustainable improvements in classroom practice and overall teacher behavior.

4. While mathematics teachers in the Southwest Butuan District perceive SLACs as having a positive influence on their mastery of subject matter, the lack of statistical significance in the correlations observed between SLAC implementation phases and this particular domain suggests that this area warrants further strategic attention. Although teachers generally believe that SLAC participation contributes to an improvement in their content knowledge, the statistical data from this study does not provide strong evidence to definitively support this perception. This finding implies that future SLAC sessions need to incorporate more specifically targeted activities and readily accessible resources that are intentionally designed to address the individual content knowledge needs of mathematics teachers. Future SLAC sessions could benefit from incorporating in-depth explorations of specific mathematical concepts, facilitated by content experts in the field, and providing teachers

with ample opportunities to explore diverse representations and effective approaches to teaching these complex concepts. Furthermore, the strategic utilization of diagnostic assessments could prove invaluable in accurately identifying teachers' specific content knowledge gaps and effectively guiding the development of relevant and impactful SLAC activities. Providing teachers with access to content-specific resources, such as advanced mathematics texts, relevant online learning modules, and the expertise of curriculum specialists, can further support their efforts to enhance their subject matter expertise.

Recommendations

Based on the findings and conclusions of this study, the following key recommendations are made to further enhance the effectiveness of School Learning Action Cells (SLACs) in the Southwest Butuan City District:

1. Given the consistently high level of perceived SLAC implementation across all phases (pre-session, during-session, and post-session), it is strongly recommended that the district continue to actively support and strategically refine the existing structures and established processes of the SLAC program. This ongoing support should include maintaining a strong emphasis on thorough pre-session planning and comprehensive needs assessment to ensure relevance and impact, facilitating engaging and contextually relevant activities during the SLAC sessions themselves, and providing consistent and well-structured follow-up and support mechanisms after the sessions conclude. Furthermore, the district should implement regular and systematic evaluation and feedback mechanisms to continuously monitor the overall effectiveness of these established processes and proactively identify specific areas for ongoing improvement. This commitment to continuous refinement will help ensure that the SLAC program remains a valuable and highly effective tool for the sustained professional development of mathematics teachers within the district.
2. Recognizing the significant and positive influence of SLAC participation on various critical aspects of teacher professional development, it is strongly recommended that future SLAC sessions continue to strategically prioritize activities that are specifically designed to enhance teachers' pedagogical skills, refine their assessment strategies, and strengthen their understanding and application of professional ethics. To achieve this, SLACs should provide ample opportunities for teachers to actively explore and engage in meaningful discussions about diverse and effective teaching strategies relevant to mathematics, learn about and gain practical experience with a wide range of assessment techniques and tools, and engage in thoughtful reflection on complex ethical dilemmas and established best practices in the field of education. Furthermore, providing teachers with readily accessible and relevant resources, such as exemplary sample lesson plans, practical assessment tools and templates, and clear and comprehensive ethical guidelines, can significantly enhance their learning and application in these crucial areas. Actively encouraging collaboration and meaningful peer learning among teachers during SLAC sessions can also prove highly beneficial, allowing them to effectively share their diverse experiences and learn valuable insights from each other's expertise.

3. Given the pivotal role of post-session activities in effectively translating the knowledge and skills gained during SLAC sessions into tangible and sustainable improvements in classroom practice, it is strongly recommended that SLACs prioritize and significantly strengthen these crucial follow-up activities. This should include proactively providing teachers with ample opportunities to actively implement the learned strategies and techniques within their own classrooms, engage in meaningful reflection on their practical experiences, and receive timely and constructive feedback from their peers, experienced mentors, or school administrators. Creating a supportive and encouraging environment where teachers feel comfortable experimenting with new instructional approaches and openly sharing their challenges and successes is absolutely essential for fostering a culture of continuous improvement. Furthermore, providing ongoing coaching and mentoring support can play a vital role in helping teachers effectively refine their skills and seamlessly integrate new knowledge into their existing instructional repertoire. Finally, encouraging and supporting teacher-led action research projects can provide a structured and empowering way for teachers to systematically implement and rigorously evaluate new instructional strategies, further enhancing their professional growth and contributing to evidence-based practice within the district.

4. It is strongly recommended that future SLAC sessions incorporate more specifically targeted activities and readily accessible resources that are intentionally designed to directly enhance mathematics teachers' content knowledge in key areas. This could involve organizing in-depth explorations of specific and often challenging mathematical concepts, effectively facilitated by experienced content experts in the field. Additionally, providing

teachers with ample opportunities to actively explore diverse representations and effective pedagogical approaches for teaching these complex concepts can significantly deepen their understanding. The strategic utilization of diagnostic assessments can also prove invaluable in accurately identifying teachers' specific content knowledge needs and effectively guiding the development of relevant and impactful SLAC activities. Finally, providing teachers with easy access to high-quality content-specific resources, such as advanced mathematics textbooks, relevant online learning modules, and the expertise of curriculum specialists, can further support their ongoing efforts to enhance their subject matter expertise and ultimately improve their instructional effectiveness.

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