Learning Action Cell (LAC) as a School-Based Continuing Profession Development Program

Ryan Jay C. Verbo ryanjay.verbo@deped.gov.ph Department of Education Mataas Na Paaralang Neptali A. Gonzales Mandaluyong City, Philippines

Abstract: The purpose of the conduct of this study entitled "Learning Action Cell (LAC) as a School-Based Continuing Professional Development" is to determine the effect of LAC to the content knowledge and instructional performance of the secondary mathematics public teachers in Mandaluyong. Mixed method design was used in the study. The researcher asked permission/approval to the Schools Division Office of Mandaluyong in utilizing the COT-RPMS rating of the respondents as well as the copy of percentage of "Passed and Failed" of the students for 2nd Quarter and 3rd Quarter rating periods for School Year 2019-2020, respectively. As revealed in the study, the content knowledge and teaching ability of the teachers has improved after the conduct of LAC and it was validated during the observation of classes before and after the conduct of LAC. There is a significant difference on the teaching ability of the teachers before and after the conduct of LAC. Likewise, data showed that there was an increase in the over-all performance of the students before and after the LAC as reflected from the over-all mean grade of 82.79 (Approaching proficiency) and 87.52 (proficiency), respectively. This implies that LAC enhances the students' performance. The researcher conducted an interview among the teachers as to what the challenges they encounter in the conduct of LAC. These constitute three challenges which were specified as follows: a) lack of preparation and professional development; b) excessive academic load for the students; and c) integration of lessons in real-life context.

INTRODUCTION:

Modern society demands high quality teaching and learning from teachers. Teachers have to possess a great deal of knowledge and skills with regard to both teaching and assessment practices in order to meet those demands and standards of quality education. Effective teacher learning and professional development is important for student achievement. Teacher learning is a continuous process that promotes teachers' teaching skills, master new knowledge, develop new proficiency, which in turn, help improve students' learning [1]. Previous studies have indicated that when teachers are effective classroom managers, their students achieve at a higher level [8] and display more interest in the class subject matter [7].

Classroom management is essential to both teachers' education and teachers' professional development, it is crucial to keep teacher's knowledge up to date, so they can deliver high quality teaching [6]. Interestingly, we know very little about teachers leaching, considering that, teachers themselves are experts in teaching and learning. This paper explores this area, in order to shed a light on the importance of continuous development program for teachers' learning. The government is doing its best to improve the teachers' performance. The Department of Education continues to find ways to improve the teaching-learning process by continuously capacitating the teachers so that they will be able to deliver the K to 12 Curriculum successfully. Likewise, according to [2], when collaboration is effective and the model is sustained over time, there are specific changes noted in staff development.

Despite the week-long training of teachers before they are immersed with the new curriculum, still some skills are lacking in the delivery of the new curriculum [5]. Hence, the issuance of DepEd Order No. 35, s. 2016, "The Learning Action Cell as a K to 12 Basic Education Program School-Based Continuing Professional Development Strategy for the Improvement of

Teaching and Learning." Schools Division of Mandaluyong is just one of the many Schools Division implementing the Learning Action Cell sessions.

The Learning Action Cell (LAC) is conducted once a month where all teachers in Mathematics department gather in a room discussing a specific field of learning competency. There are resource speakers as discussants who share their expertise and even the learning techniques and materials utilized in an actual classroom teaching.

The purpose of the conduct of this study is to determine the effect of Learning Action Cell (LAC) to the content knowledge and instructional performance of the fifty (5) secondary mathematics public teachers in Mandaluyong.

RESEARCH METHODOLOGY:

The researcher used a mixed method research design which is an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks. Quantitative method was used to determine the level of the teacher-respondents in terms of content knowledge and instructional performances before and after attending the LAC sessions. Qualitative method was used through an interview guide to know the different challenges encountered by the teachers in the conduct of the LAC sessions in their respective schools.

Purposive sampling technique under non-probability sampling technique was utilized in choosing the respondents of the study. The total number of secondary Mathematics teachers in an Integrated Schools at the Department of Education, Division of Mandaluyong for school year 2019-2020 in Integrated Schools was fifty (50).

In collecting data for this study, the researcher asked permission/approval to the Schools Division Office of Mandaluyong in utilizing the COT-RPMS Rating of the respondents for 2nd Quarter and 3rd Quarter rating periods for School Year 2019-2020. This tool was developed under the Philippine Professional Standards for Teachers (PPST). There are seven Domains composed of thirty-seven (37) strands that describe to more specific dimensions of teacher quality practices. In the beginning of the implementation of the PPST, there are only nine (9) key result areas (KRAs) that were utilized and included in the COT-RPMS Rating.

The percentage of "Passed" and "Failed" of the students in Mathematics from Grade 7 to Grade 10 in 2nd Quarter and 3rd Quarter was also used to determine the students' performance before and after teacher's participation in LAC. On the other hand, Interview guide questions were also crafted and developed by the research to determine the challenges of the teachers after attending the LAC sessions. The interview guide question was validated by the thesis adviser and the panel members before it was used by the researcher.

RESULTS AND FINDINGS:

1. Respondents' Level of Content Knowledge before and after the conduct of LAC

The Philippine K to 12 Basic Education Curriculum in Mathematics is a Spiral Approach in order to provide opportunities for the learners to develop skills and attitudes needed for effective participation. Junior High School Mathematics Curriculum include Measurements, Basic Algebra and Statistics for Grade 7; Algebra II, Basic Geometry, Statistics and Probability for Grade 8;

Geometry and Basic Geometry for Grade 9; and Intermediate Algebra, Circle, Probability and Measures of Variability for Grade 10.

Table 1 presents the level of Content Knowledge of the Secondary Mathematics teachers before and after the conduct of LAC.

Table No. 1
Level of Content Knowledge of the Secondary Mathematics teachers before and after the
conduct of LAC

conduct of Life								
	В	EFORE	AFTER					
	C	lassroom	Classroom					
Content Knowledge	Observation Rating 1		Observation Rating 2					
	Moon	Verbal	Moon	Verbal				
	Mean	Interpretation	Iviean	Interpretation				
Applies knowledge of content	4.06	Very	4.54	Outstanding				
within and across curriculum		Satisfactory						
Uses a range of teaching strategies that enhance learner achievement in literacy and numeracy skills	3.78	Very Satisfactory	4.48	Very Satisfactory				
Applies a range of teaching strategies to develop critical and creative thinking as well as other higher-order thinking skills	3.06	Satisfactory	4.36	Very Satisfactory				
Over-all Mean	3.63	Very Satisfactory	4.46	Very Satisfactory				

Data revealed that the teachers were rated very satisfactory before the LAC session in applying knowledge of content within and across curriculum based on the mean score of 4.06, but were rated outstanding after the LAC as seen from the mean score of 4.54. On the other hand, the teachers were both very satisfactory before and after the LAC in using a range of teaching strategies that enhance learner achievement in literacy and numeracy skills as described from the mean score of 3.78 and 4.48, respectively. Moreover, the teachers were rated satisfactory before the LAC in applying a range of teaching strategies to develop critical and creative thinking as well as other higher-order thinking skills as indicated from the mean score of 3.06, but were rated very satisfactory after the LAC as reflected with the mean score of 4.36.

LAC sessions, facilitated by a designated LAC leader, have proven to be effective in engaging a group of teachers in collaborating and solving shared challenges. LAC sessions encourage critical reflection amongst teachers which increases the understanding and knowledge of the curriculum and classroom practices.

In an interview with the respondents, a teacher remarked,

"Professional development is the key to educational improvement. Through the Learning Action Cell, I was able to engage in collaborative learning sessions to solve shared challenges encountered in the school facilitated by our school head." Another teacher said,

"I appreciated the LAC because it is a collaborative approach for us teachers to plan, present, observe, and evaluate and reflect on classroom lessons."

According to [4] premium to realizing the Department of Education's vision to continuously improve as a learning centered institution is the continuing professional development and advancement of teachers who are tasked to deliver basic education to the students, our stakeholders. Quality teaching results to quality learning, thus, as an institution of learning, it is an utmost important to enhance teacher quality based on the principle of lifelong learning. One of the mechanisms to support professional development of teachers is through the institutionalization of DepED Order 35, series of 2016 otherwise known as the "The Learning Action Cell as a Kto12 Basic Education Program School Based Continuing Professional Development Strategy for the Improvement of Teaching and Learning", that aims to develop and support successful teachers by nurturing their knowledge, attitudes, and competencies in terms of curriculum, instruction, and assessment in their work stations.

2. Respondents' Level of Instructional Performance before and after the conduct of the LAC

Table 2 shows the level of instructional performances of the secondary Mathematics Teachers before and after the conduct of the LAC.

It was found out that before and after the conduct of LAC, the teachers were rated satisfactory in using differentiated, developmentally appropriate learning experiences to address learners gender, needs, strengths, interests and experiences as seen from the mean score of 3.48, but were rated outstanding after the LAC as indicated from the mean score of 4.68. On the other hand, the teachers performed very satisfactory before the LAC in managing learner behavior constructively by applying positive and non-violent discipline to ensure learning-focused environments based from the mean score of 3.80, but were rated outstanding after the LAC as indicated from the mean score of 4.56.

	В	EFORE	AFTER		
	Classroo	om Observation	Classroom Observation		
Instructional Performance	I	Rating 1	Rating 2		
	Mean	Verbal	Mean	Verbal	
	Ivicali	Interpretation	Wiedli	Interpretation	
Manages classroom structure	3 70	Very	4 26	Very	
Wanages classiooni structure	5.70	Satisfactory	4.20	Satisfactory	
Manages learner behavior	3 80	Very	1 56	Outstanding	
constructively	5.80	Satisfactory	4.50	Outstanding	
Uses differentiated, developmentally	3 48	Satisfactory	4 68	Outstanding	
appropriate learning experiences	5.40	Satisfactory	ч.00	Outstanding	
Plans, manages and implements		Verv			
developmentally sequenced teaching	4.22	Satisfactory	4.78	Outstanding	
and learning processes		Batistactory			
Selects, develops, organizes and uses		Verv		Verv	
appropriate teaching and learning	3.64	Satisfactory	4.30	Satisfactory	
resources, including ICT		Batistactory		Batisfactory	
Designs, selects, organizes and uses		Verv			
diagnostic, formative and summative	4.46	Satisfactory	4.78	Outstanding	
assessment strategies		Satisfactory			
Over-all Mean	3 88	Very	4 56	Outstanding	
Over-all Ivitali	5.00	Satisfactory	т.30	Outstanding	

 Table 2

 Respondents' Level of Instructional Performance before and after the conduct of the LAC

Moreover, the teachers before the LAC performed very satisfactory in designing, selecting, organizing and in using diagnostic, formative and summative assessment strategies consistent with curriculum requirements as described from the mean score of 4.46, but were rated outstanding after the LAC as indicated from the mean score of 4.78.

As revealed in the study, the teaching ability of the teachers has improved after the conduct of LAC in terms of content and strategy and it was validated during the observation of classes before and after the conduct of LAC. There is a significant difference on the teaching ability of the teachers before and after the conduct of LAC.

In an interview a teacher stated,

"I appreciated the conduct of the LAC in school through our principal because it is directed towards improving our knowledge, skills, and attitudes based on established competencies particularly in Mathematics."

Another teacher revealed,

"The LAC would be of big help to all of us teachers to address the instructional competence and performances of the teachers."

Another teacher remarked,

"Since the LAC sessions were being conducted every month it would help the mathematics teachers to streamline their teaching pedagogies for every topics in the curriculum guide."

LACs become the school-based communities of practice that are positive, caring, and safe spaces. This policy provides the framework and enabling mechanisms for the conduct and implementation of LAC in schools. It is directed towards improving teacher knowledge, skills, and attitudes based on established competencies linked to the K to 12 Curriculum.

3. Difference in the level of content knowledge and instructional performance of teachers before and after the conduct of LAC

Table 3 indicates the significant difference in the level of content knowledge and instructional performance of teachers before and after the conduct of LAC.

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Difference in the level of content knowledge and instructional performance of teachers before and after the conduct of LAC

Performance	Over-a	ll Mean	z-value		z-value		z-value		Decision	Remarks
	Before	After	Computed	Tabular						
Content knowledge	3.63	4.46	3.34	1.96	Reject	Significant				
Instructional performance	3.88	4.56	4.01	1.96	Reject	Significant				

Content knowledge. The hypothesis was rejected and concludes that there is a significant difference in the difference in the level of content knowledge of teachers before and after the conduct of LAC since the computed z-value of 3.34 is greater than the tabular z-value of 1.96 at 0.05 level of significance. Data implies that the LAC improves the teachers' content knowledge in Mathematics.

Instructional performance. There is a significant difference in the difference in the level of content knowledge of teachers before and after the conduct of LAC since the computed t-value of 4.01 is greater than the tabular t-value of 1.96 at 0.05 level of significance. Findings reveal that the LAC improves the teachers' instructional performance in Mathematics.

4. Performance of students before and after teachers' participation in LAC

Table 4 illustrates the performance of students before and after teachers' participation in LAC.

Table 4								
Performance of students before and after Teachers' participation in LAC								
	BEFOR	E LAC	AFTER LAC (3rd Quarter)					
Performance	(2nd Q	uarter)						
	f	%	F	%				
90% and above (Advanced)	15	4	38	10				
85 - 89 (Proficient)	54	14	159	41				
80 - 84 (Approaching Proficiency)	119	31	73	19				
75 – 79 (Developing)	128 33		100	26				
74% and below (Beginning)	69	18	15	4				
Total	385	100	385	100				
Over-all Mean grade	82.79		87.52					
	(Approaching Proficiency)		(Proficient)					

Data showed that during the second quarter before the LAC there were 128 or 33 percent of the students were rated developing with grades ranging from 75 - 79, followed by 119 or 31 percent who were rated approaching proficiency whose grades ranges from 80 - 84, while 69 or 18 percent were rated beginning whose grades are 74% and below, while 54 or 14 percent were rated proficient with grades ranging from 85 - 89, and that 15 or 4 percent were rated advanced with grades are 90% and above. On the other hand, during the third quarter after the LAC there were 159 or 41 percent were rated proficient whose grades ranges from 85 - 89, followed immediately by 100 or 26 percent were rated developing with grades ranging from 75 - 79 as compared to 73 or 19 percent were rated advanced whose grades are 90% and above, and that 15 or 4 percent were rated developing with grades ranging from 80 - 84, while 38 or 10 percent were rated advanced whose grades are 90% and above, and that 15 or 4 percent were rated beginning with grades 74% and below.

Data showed that there was an increase in the over-all performance of the students before and after the LAC as reflected from the over-all mean grade of 82.79 (Approaching proficiency) and 87.52 (proficiency), respectively. This implies that LAC enhances the students' performance.

In an interview a teacher said,

"After the LAC the teachers showed an increased understanding and knowledge of the curriculum that helped students' better performance."

Another teacher commented,

"The changes in teachers' pedagogy or practices are aimed at improving learners' participation and achievement in school."

Teacher learning through LAC is a continuous process that promotes teachers' teaching skills, master new knowledge, develop new proficiency, which in turn, help improve students' learning. Previous studies have indicated that when teachers are effective classroom managers, their students achieve at a higher level [8] and display more interest in the class subject matter [7]. Classroom management is essential to both teachers' education and teachers' professional development, it is crucial to keep teachers knowledge up to date, so they can deliver high quality teaching [3].

5. Relationship between the students' performance and the teachers' level of content knowledge and instructional performance after the conduct of the LAC

Table 5 indicates the relationship between the students' performance and the teachers' level of content knowledge and instructional performance after the conduct of the LAC.

 Table 5

 Significant relationship between the level of effectiveness of the training program, and their performance

Performance	Teacher	Pearson's	Correlation	t-value		Remarks	Decision
	performance	R		Comp	Tab		
Students' performance	Level of content knowledge	0.798	High Correlation	4.32	1.645	Reject	Significant
1	Instructional performance	0.802	High Correlation	3.56	1.645	Reject	Significant

Level of content knowledge. Based on the results of Pearson's r of 0.798, it can be deduced that there is a high correlation between the between the students' performance and the teachers' level of content knowledge after the conduct of the LAC. Furthermore, since the computed t-value of 4.32 is greater than the tabular t-value of 1.645 using 0.05 level of significance, the hypothesis was rejected and concludes that there is a significant relationship between the students' performance and the teachers' level of content knowledge after the conduct of the LAC. Data implies that the teachers' level of content knowledge affects the students' performance.

Instructional performance. Based on the results of Pearson's r of 0.802, it can be deduced that there is a high correlation between the between the students' performance and the teachers' instructional performance after the conduct of the LAC. Furthermore, since the computed **t**-value of 3.56 is greater than the tabular **t**-value of 1.645 using 0.05 level of significance, the hypothesis was rejected and concludes that there is a significant relationship between the students' performance and the teachers' instructional performance after the conduct of the LAC. Findings indicate that the teachers' teachers' instructional performance after the students' performance.

6. Challenges Encountered in the conduct of LAC

The researcher conducted an interview among the teachers as to the challenges they encountered in the conduct of LAC. These constitute three challenges which were specified as follows: a) lack of preparation and professional development; b) excessive academic load for the students; and c) integration of lessons in real-life context.

6.1 Lack of preparation and professional development. On of the issues raised by the teachers pertains to the Lack of preparation and professional development.

In an interview a teacher said,

"It's the preparation of the teachers; they have to be trained to get NC II certificates."

Another teacher remarked,

"We have to prepare for three or more science subjects as compared to the old curriculum, we only prepare one subject. And if you are Physics major, you only teach Physics, if you are a Biology major, you only perform Biology but with the K to 12 curriculum, we have to prepare for all those science areas, Biology, Physics, Chemistry, and not all were trained for that."

Another teacher stated,

"Specific difficulties, siguro first one is teacher preparation, theteacher feels like there are, though they can prepare for the subjectbut they do not have enough attended trainings kasi most of us came from universities."

A senior teacher remarked,

"The difficulty is at of course when I came here to the senior high, I had to adjust to the curriculum of the DepEd. In the university, you can teach any way you like and you can do any format that you likein your teaching, you make your own exam, etc. But here in the senior high since you're already under DepEd you have to follow certain standards, like following the curriculum guide, how to make assessments and so on.

The needs of preparation, adjustment, experience, mastery of subject, and professional development are the underlying factors affecting the teaching-learning process. Trainings undergone by these teachers are not enough to ensure that the curriculum is seamless, especially those instructors from college that are deployed in high school.

6.2 Excessive academic load for the students. Another problems encountered by the teachers was that LAC provides excessive academic load for the students.

A teacher said in an interview,

"Well the fact that you have to teach 3 in 1 challenges your physical and mental efforts...so you have to learn or relearn three things."

Another senior teacher stated,

"Magsisimula ka ng 7:30 matatapos ka ng 12, mag-uumpisa ka nanaman ng 1 matatapos ka ng 5. Sa kanila yan (teachers) daming paperworks na. Then syempre they have lesson plans and some activities that hinder also academic tulad nyan. (referring to students practicing for the intramurals). Pero di mo naman pwedeng alisin yan kasi requirement yan." [You will start at 7:30 in the morning and end at 12:00 noon, begin again at 1:00 in the afternoon and end at 5:00pm. That is for the teachers who would want to finish the job before leaving the school which became too much paper works. Likewise, they have lesson plans and some activities that hinder academic tasks but you cannot take away those tasks because it is part and parcel of our job.]

Another teacher remarked,

"The excessive academic load has an adverse effect on the performance of both teachers and students. It requires combined efforts to fulfill the standards set by DepEd, and it's up to them on how to balance academics and co-curricular activities." **6.3 Integration of lessons in real-life context.** Another challenge the teachers encountered was the integration of lessons in real-life context.

A teacher said in an interview,

"...ready to face challenges or related topics to real life situations."

Another teacher revealed,

"...you as a teacher, kailangan mo silang tulungan by making tasks suitable for each grade level..."

Another teacher said,

"To integrate lessons in real-life context is primarily a job of the teacher. It challenges them to think and carry out effective measures to make learning meaningful and useful on a day to day basis."

7. Research Output:

PROJECT *Contextualized Learning Action Cell Session Strategy* (CLASS): A Continuous Improve Program (CIP)

Rationale:

In order to sustain the significance of conducting LAC for teachers, Project CLASS – Contextualized Learning Action Cell Session Strategy – a *Virtual Learning Action Cell* strategy was developed and is now being proposed not only in Mathematics but to all learning areas as well.

The conduct of LAC must have factual basis parallel to DepEd Order No. 35 s. 2016. It must address the professional needs of the teachers. Determining the topics to be discussed should be appropriate to the needs of the teachers and likewise be closely monitored not only for compliance purposes but in making sure that the effort would not come into waste. It is imperative to develop an evaluation mechanism in order to determine the significance of conducting LAC both to the performances of the facilitators and the attendees (teachers).

The purpose of conducting Project CLASS is to give factual ideas with the significance of conducting Virtual LAC from crafting the proposal, during the conduct of the session and most importantly after the conduct of LAC. LAC is just like having a real class that must be given importance and not just a mere compliance.

The project will introduce **CARES Approach**; Calibrate the Teachers knowledge and pedagogy, Accustom New Learning Spaces, Re-model the Curriculum, Encourage Flexible learning options and Simulate flexibility and innovation.

Calibrate the Teachers' knowledge and pedagogy to standardize the comprehension and teaching strategies of the teachers in a particular topic through peer teaching and micro teaching.

Accustom New Learning Spaces in this new normal amidst the Pandemic will help the teachers to familiarize themselves the virtual classrooms like Google meet, Zoom, Messenger Classroom and other virtual classroom.

Re-model the curriculum to address the new normal and get to know the important topics prescribed by the DepEd through the MELCs or Most Essential Learning Competencies.

Encourage the teachers to provide flexible learning options such as Synchronous and Asynchronous Leaning and the Modular distance learning to be able to help our students adjust in this time of Pandemic.

Simulate Innovation and Teaching techniques to be able to address online classes in this new normal and be able to give some ideas on how to deliver teaching strategies with the use of Information Technologies and other gadgets.

Key Process and Key Process Indicator (KPI)

Key Process: To increase the level of content knowledge and instructional performance of the JHS Mathematics teachers after the conduct of LAC sessions as manifestation to the increase of Quarterly Mean Percentage Score of the students and to by Classroom Observation Rating period of the Teachers.

KPI: 70% to 75% results in quarterly examination of the students and a rating of Very Satisfactory in Quarterly Classroom Observation Rating of the teachers after their participation in LAC sessions.

Objective:

- 1. To give factual basis/evidence for a training need to be conducted for LAC sessions.
- 2. To monitor the conduct of LAC with the evaluation mechanism of Project CLASS.
- 3. To sustain the significance of conducting LAC sessions as a school-based continuing professional development strategy for teachers.
- 4. To analyze the importance of the topics discussed in every LAC sessions by conducting follow evaluation to the teacher-attendees.

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