INVESTIGATING THE LEARNING ACTION CELL (LAC) EXPERIENCES OF SCIENCE TEACHERS IN SECONDARY SCHOOLS: A MULTIPLE CASE STUDY

MARK GIL A. VEGA
https://orcid.org/0000-0002-2442-7784
Philippine Normal University, Manila Philippines
Visayas State University, Baybay, Leyte Philippines
markgil.vega6@gmail.com

ABSTRACT

The Department of Education (DepEd) has implemented a policy on the Learning Action Cell (LAC) as a Professional Development Strategy for teachers. This policy helps the teacher to collaborate and solve shared challenges in the school. The principal objectives of this study were to investigate the benefits, challenges, and means of implementation of Learning Action Cell of Science teachers in Secondary Schools of DepEd in the National Capital Region. The study used qualitative, multiple case study design employing survey questionnaires, individual interviews, focus group discussions and LAC observations There were five individual interviews, six focus groups, four actual LAC observations, with approximately 59 participants conducted in this case study. The findings revealed that the implementation of LAC concerning the scheduling of sessions is different and inconsistent with other schools. In addition, there is no tool for evaluating the LAC session, no success indicator applied in the school and no LAC model to follow in implementing LAC. There are four themes that emerged in the benefits experienced by science teachers, which include: Better Working Environment, Develop Good Relationship, Professional Growth, Content and Pedagogical Knowledge. The participants in this study identified a number of challenges. They were divided into six themes: Scheduling, Disruption of Classes, Teachers' Availability, LAC Activities, LAC Framework, and Funding. Furthermore, the principal results of the study showed that the implementation of LAC has an impact on teaching science but still, the participants recommended strengthening the LAC through creating a LAC model and development of LAC evaluation to monitor the status of LAC in each school properly.

Keywords: Learning Action Cell, Science Teachers, Secondary Schools, Qualitative research, Multiple Case Study, Philippines

INTRODUCTION

Diverse methods of professional development activities are directed by the Department of Education (DepEd) in the Philippines. Their primary functions are to help teachers improve their practice and develop strategies for teaching based from the Republic Act No. 10533, or the Enhanced Basic Education Act of 2013. From this, DepEd has mandated a policy on Learning Action Cell (LAC) for all teachers in the Basic Education Schools. DepEd stated that most of the processes to improve teaching were introduced as a top-down method, meaning knowledge is just transferred or shared by an expert in the field and then passed on to teachers. Examples of this are training workshops and lectures during short term courses. However, there are also fewer instances in which the bottom-up method or

teacher programs are applied, such as team teaching, collaborative content planning, and conduct of action research as a group. Further, one example that is related to the bottom-up approach is the Learning Action Cell (LAC) session that is already issued by the Department of Education (DepEd) as an enclosed policy to elementary and secondary schools. This concept on LAC is inspired by the structured model of professional development on a lesson study that originated in Japan (Mendoza, 2017). Lesson study is a collaborative approach to classroom lessons where teachers plan, present, observe and evaluate classroom lessons. According to Luistro (2016), the DepEd entirely support its teaching personnel by having this policy as a channel for continuing professional development. LAC includes different areas such as: the diversity of learners in the classroom, assessment of the lesson based on the competencies aligned to the K to 12 Education Program, curriculum contextualization, and the concern of teachers related to content and pedagogy in teaching. All these areas must be catered by the LAC leader, particularly the principal or the school head. Accordingly, this policy aims to build a school-based community of practice that advances and helps teachers by fostering their skills in teaching, knowledge of the content, attitudes, and competencies concerning curriculum, instruction, and assessment. This is towards a continuing skills development and practice of teachers or the Continuing Professional Development (CPD) of teachers (Avalos, 2011, Gess-newsome, 2015). The content to be discussed in LACs is on the identified topics and concerns by teachers which is consistent to the areas of discussion featured in the K to 12 Basic Education Program as stated in Republic Act (R.A.) No. 10533. Moreover, LAC as professional learning is interesting because it supports the increasingly complex skills in the 21st century. These skills include the ways of thinking such as creativity, critical thinking, decision-making, problem-solving, and learning which further connects to the framework of education teachers' professional development which is a key factor for learners' achievement (Baumert et al., 2010; Bakkenes, 2010; and Parker, 2016). LAC as a response to active professional learning development faces a lot of concerns and issues among teachers in the public schools. Since 2016, there was no clear study being conducted throughout public schools in lieu of its challenges and benefits experienced by teachers and their means of implementation in the DepEd. This study then investigated the experiences of science teachers in connection with the benefits, challenges, and means of implementation of LAC sessions in secondary schools. The study focused on science teachers, which consists of different clusters such as Physics, Biology, Chemistry, Earth Science, and General Science. In addition, this study presented recommendations suggested by the teachers in the implementation of the LAC session.

OBJECTIVES OF THE STUDY

This research directed to investigate the implementation of Learning Action Cell (LAC) in Secondary schools. Specifically, the study aimed to: 1) to analyze the Means of Implementation of Learning Action Cell to schools; 2) to determine the Benefits of Learning Action Cell for science teachers; and 3) to investigate the Challenges of Learning Action Cell as encountered by science teachers.

METHODOLOGY

This study applied qualitative research, wherein the views and experiences of teachers were deemed to be essential in this study. Specifically, the study used multiple case studies that utilized a descriptive approach employing survey questionnaires, individual interviews, focus group discussions, and LAC observations. This multiple case study followed a repetitive procedure to five schools as subjects in the study. The multiple case studies examined benefits, challenges, and means of

implementation of LAC in five schools of NCR. The respondents of the study were Science Teachers in the Public Secondary Schools. The study used purposive sampling in choosing the respondents. A total of 59 science teachers from five schools of the National Capital Region (NCR) participated in this study. The schools were selected from three Division Offices (DO) from Quezon City, Pasay City, and Manila City. The participating schools in the study were named as school A, B, C, D, and E. Each of the school was given survey questionnaires, had individual interviews to the science teachers and LAC leader, focus group discussions with the LAC members and lastly, observations on actual LAC session. Participation was voluntary, and the researcher assured all were responses confidential. First, survey questionnaires were distributed to fifty-nine science teachers from School A, B, C, D, and E. Then, the researcher conducted individual interviews with six science teachers in relation to the benefits experienced in LAC. Next, focus groups were initiated to the science teachers discussing the benefits of LAC, the challenges and the means of implementation of LAC in their department. The discussion lasted up to 30 minutes, and a total of six focus groups were achieved in this study. Lastly, the researcher observed four actual LAC sessions in which the flow, activities, and participation of teachers as LAC members and facilitators were presented. Finally, the coded themes provided a means to summarize the findings and to make recommendations from the study.

RESULTS AND DISCUSSION

1. Learning Action Cell (LAC) Experiences of Science Teachers in Secondary schools

Learning Action Cell (LAC) session aims to provide a community of practice that engages in collaborative planning, problem-solving and, action implementation. The participants in this study experienced collaboration and engagement through solving current problems and sharing new insights into strategies. Teachers shared experiences in LAC, identified challenges, and means of implementation in LAC. Tables 1 and 2 provide lists of benefits and challenges derived from the data collected in this study.

1.1 Means of Implementation of Learning Action Cell in Secondary School

In 2016, Republic Act No. 10533, or the enhanced Basic Education Act of 2013 introduced the enclosed policy on the LAC as a K to 12 Basic Education Program School-Based Continuing Professional Development Strategy. This policy on LAC was mandated all throughout public schools as part of the professional development of teachers. However, its implementation was still an issue for other schools. According to the interview and Focus Group Discussion (FGD) to School A, LAC is conducted once a month and monitored by the department head or the LAC leader. Since school A is one of the biggest schools in NCR, the schedule of LAC is on the opposite session, meaning they have two sessions, one for the morning and another in the afternoon. LAC leader shoulders the expenses for the LAC session. The topics in LAC were on Pedagogical Retooling in Mathematics, Language and Science (PRIMALS), current trends in education, and issues in the classroom. The participants mentioned that they have a reflection pad to write on for the agenda and lectures which was also observed during the LAC session. They have mentioned as well that the reflection serves as their evaluation of the LAC session. School B also scheduled their LAC once a month, and the LAC leader monitors the LAC plan. School B was a small school, which had one session only. Based on the survey questionnaire and FGD, funding is one of the issues in implementing LAC. According to the participants, there should be funds allotted in every LAC session to plan well the activities, like inviting a speaker who will give inputs or ideas on the different trends in improving the mastery of the students in science.

The topics in LAC were based on the current issues of students in the classroom and on PRIMALS. Furthermore, the school had no written evaluations to indicate the success of the session. School C mentioned during the FGD and survey questions when LAC session was first introduced this became an issue to teachers because it was similar to their Teacher Quality Circle (TQC), where they usually gathered in a small group to discussed concerns and problems in the classroom. Since School C was a big school where LAC session was scheduled separately for morning session and afternoon session same with School A, to avoid disruption of classes and to allow teachers to finish their paper works. However, their LAC was done every quarter; this is because the school has a lot of school activities and requirements to prioritize. Same with School B, there was no written evaluation to indicate the success of the session. The topics discussed in LAC enriched their wisdom on science curriculum and content such as topics in robotics, stress management, health concerns, safety percussion, and earthquake drill, while small groups or grade levels discussed the content in science. Concerning to the LAC fund, the facilitator per grade level provided the snacks. LAC session in School D is scheduled every quarter, same with School C. However, there was inconsistency with the session due to the busy schedule of teachers. It was conducted separately in two opposite sessions, morning and afternoon. Based on the FGD and interview, the success indicator for the LAC session was on the Classroom Observation of Teachers (COT) conducted by the Department Head or the Master teacher. Another, they mentioned means of verification (MOV), where this serves as evidence if they achieved their objectives. Further, the school recommended having enough funds for the LAC. to invite speakers from the division office or outside the school and to have a model of LAC listing the relevant topics and activities. Based on the data gathered in School E, LAC is scheduled once a month, and the LAC leader always monitors the LAC plan. The attendance of teachers in the LAC session usually has points for the MOV. However, monitoring and evaluation are lacking for the session. There was no written evaluation of the LAC session, which supposedly serves as a success indicator of the LAC session. Based on the survey questions and FGD, it was recommended to provide the LAC model or framework where it listed the important topics of LAC, suggested activities and written evaluation for feedback and success indicator. From the data gathered, survey questions, FGD, interview, and LAC observation, data sources revealed that the LAC leader or the department head prepares the LAC Plan of the session. It was mentioned by one LAC leader that before the start of the session, they asked the teachers to affix their signature on the schedule provided to ensure their presence during the session. There was no tool for monitoring and evaluating the LAC session. According to the interview, monitoring is based on the class observation, on its application inside the classroom. In addition, no success indicator applied in the school. Data agreed that scheduling of meetings is inconsistent among different schools. The policy stated to have at least one to two hours per week as recommended or once a month, depending on the availability of the teacher. On the other hand, three schools said once a month; however, it was still negotiable, and two schools mentioned every quarter due to a busy schedule of the school. The timeframe was between one to two hours, depending on the length and importance of the topic. Funding was not evident to all, where most interviewed teachers do not have an idea about the source of funds for the LAC session. Based on the investigation, one school experienced support from the Maintenance and Other Operating Expenses (MOOE). However, it takes the lengthy process and LAC proposal to get funding. The most common impact of LAC in the school was the strategies they gained in attending the LAC session. It enhanced their skills in teaching, got updates on the memo of the DepEd, and learned from the 21st-century skills. It developed the performance of students

in the classroom and widened the understanding on the concept of science. In the Focus Group Discussion (FGD) participants did not mention the LAC implementation norms, which should discuss how the school link to the community that helps the curriculum.

2. The Benefits of Learning Action Cell to Science Teachers in Secondary Schools

.

Table 1

Learning Action Cell benefits for Science Teacher

Benefits of Learning Action Cell	
Better Working Environment	**Professional Growth**
Develop team teaching through Collaboration	Empowers teacher by becoming a speaker in LAC activity
Enjoyed the learning-teaching activities in LAC	Develop leadership skills
Openness on the problems encountered in class	Improve research writing
Good teaching atmosphere	Acquired knowledge on test construction, Code of ethic, curriculum, and research
Develop Good Relationship	Become reflective on the problems that leads to research
Shared fun moments while sharing of ideas	**Improve Content and Pedagogical knowledge**
Getting to know well with co-teachers	Improve teaching strategies and techniques in science
Create bonding while doing LAC session	Update new knowledge of the content
Create good relationship	Improve classroom management
Develop camaraderie	Empowering the mastery of content
	Provide advancement in the science content

The benefits of LAC experienced by science teachers that emerged from this study are divided into four themes: (1) Better Working Environment (2) Develop Good Relationship, (3) Professional Growth, (4) Content and Pedagogical Knowledge. Table 1 defines the specific benefits experienced by science teachers in LAC session and listed them under their broad headings. Camaraderie was the most common benefit as experienced by the five schools in the study. Based on the FGD with School A, when LAC first introduced in the school, they felt the burden because this was an additional workload to the teachers. However, later they had fun and enjoyed participating in the LAC activities. The activity done in the LAC session created bonding among the teachers and able to create friendship. Further mentioned that the topics in LAC, particularly on Pedagogical Retooling in Mathematics, Language and Science (PRIMALS) which were echoed by the teacher who attended the seminar empowered them to develop leadership skills and gave them knowledge on the recent pedagogy in teaching. According to School B, the most frequently mentioned benefit of LAC was the learning gained in the session. Participants indicated that they learned techniques and strategies in teaching science as well as it provided insight and opportunity to improve their theoretical perspective in science. Based on the LAC observation, teachers acquired knowledge on test construction, curriculum, and research writing. It gave them the opportunity to explore different strategies and become more reflective. From the perspective of school C, professional development was one of the benefits experienced by the science teachers in LAC. Data agreed that text construction, code of ethics, curriculum, and research writing are topics they experienced in the LAC. They appreciated its significance to the science concept and methods, where trends in science education were discussed like research, robotics, and different terms and policy in DepEd like the use of Results-based Performance Management System (RPMS), Maintenance and Other Operating Expenses (MOOE), and the like. Further, according to FGD, LAC session improved their relationship among faculty members where LAC became a bonding experience while they developed their pedagogy and empowered their mastery on the topics.

School D mentioned in the interview and survey questions that they experienced camaraderie and fun moments in doing LAC. They got to know the style of teaching among teachers and a chance to collaborate. They experienced new teaching strategies, content knowledge, and problems of students of the 21st century. Lastly, School E mentioned that sharing of thoughts and ideas are some of the benefits they have experienced which include improvement in the teaching-learning process, development of the knowledge and attitude, and competencies of the teacher such as curriculum instruction and assessment. Through LAC, they were given the opportunity for professional growth and career development and able to identify their weaknesses and strengths in the profession. Data sources revealed that science teachers experienced a better working environment on the implementation of LAC. Teachers developed a good relationship with co-teachers since they were more open to the issues encountered in the classroom and it served as bonding despite busy school works. Further, teachers were also empowered in career and professional development.

2. The Challenges of LAC Sessions as Encountered by Science Teachers

The challenges of science teachers in doing LAC emerged in six themes: (1) Scheduling, (2) Disruption of Classes, (3) Teachers' Availability (4) LAC Activities, (5) LAC Framework, (6) Funding. One common LAC challenge based on the data is the disruption of classes. Results from the FGD found most schools agreed that scheduling of LAC affects their classes. Although it is scheduled in the availability of teachers, still the specific time allotted for LAC exceeded beyond two hours. Despite the challenge in meeting classes, their intervention was to assign a higher-grade level student to supervise their classes and prepare some activities and seat works for the students to work on.

Table 2
Challenges to the implementation Learning Action Cell

LAC Challenges for Science Teachers	
Scheduling	**LAC Activities**
Falls on a busy schedule	Topics are not universal, other teachers can't apply topics
Overlap with teacher's classes	Common and familiar content
Sometimes NO prior notice on the timing of LAC	The activities are boring and not organized
Time exceeded beyond time allotment	Less preparation for the materials and resources
Time Constraints	
Disruption of Classes	
Classes are disrupted	**LAC Framework**
Leaving students inside the classroom	No specific guidelines in implementation
	No model to the flow of topics
Teachers' Availability	Topics are not organized
Coincide with the submission of grades and papers	
	Funding
Missed the session due to the busy schedule	Not accessible fund allotted for LAC

Data sources revealed that lack of funding was common to all schools. Most participants mentioned they did not receive any financial support from the school to fund the LAC session. However, one Department head stated that the fund might get from the MOOE of the school, but due to its lengthy process, the LAC head initiated on the funding of snacks and refreshments. However, funding may be needed if the LAC session requires expert resource speakers outside the school or having a venue outside the school. LAC topics were another challenge facing by all schools. Teaching strategies, research, and student's problem were examples of LAC topics. Data agreed that the topic was negotiable from each school, and it focused on the Content and Pedagogy of the K to 12 Basic Education Program, 21st-century skills and ICT integration in Instruction and Assessment and Curriculum, Contextualization. However, learner diversity and student inclusion, assessment, and reporting of the K to 12 Basic Education Program and indigenization were not tackled in the LAC session. Further revealed that there was no model for the specific topic to be a priority in the session, wherein usually, the LAC

leader decides the topic. School A mentioned during the interview that LAC usually falls on their busy schedule. Another was the disruption of classes; usually, LAC activity exceeded the allotted two hours. Also, teachers were challenged with the output after the LAC activity where they need to read researches related to the principles introduced to them. Based on the FGD and survey questions, school B mentioned that a lack of funds for the LAC session was one of the challenges they had encountered. In addition, the school activities and suspension of classes normally postponed the LAC session. Application of learning gained in the LAC, such as strategies and techniques in the teaching-learning process was quite challenging as well. Lastly, monitoring and evaluation were another challenge because there was no formal evaluation of the previous LAC activities done. The most frequently mentioned challenged in LAC from school C was the disruption of classes. However, they provided intervention and seatwork for their classes. School D and E stated that although some participants were excited about the LAC session, however, some find other topics discussed in LAC were irrelevant and tedious, especially if it's already common knowledge. Another was the lack of funds for LAC. Participants stated that the grade level assigned for the LAC provided the snacks and the resources needed. Moreover, based on the interview with school E, although collaboration was one advantage in doing LAC sessions, this becomes a challenge in this particular group. Collaboration through shared ideas leads to a different opinion.

CONCLUSION

The respondents believed that Learning Action Cell is significant for professional development and growth. Likewise, the LAC policy enhanced the educational philosophy of science teachers and their views in teaching, as a profession and as a vocation. Furthermore, based on the findings, the following conclusions were drawn:

1. Learning Action Cell provides a number of benefits to teachers in the concept of science and teaching strategies, however, the means implementation of the LAC needed clear orientation on the objective and goals of the policy.
2. The topic on the LAC particularly in Learner Diversity and student Inclusion, Assessment and Reporting in the K to 12 Basic Education Program, and Localization, and Indigenization must be discussed in the LAC session as priority topics.
3. The inadequate funding, absent of LAC model and evaluation form are among of the challenges in the implementation of the LAC.
4. The data gathered in this study will serves as a basis to further improve the LAC in different schools and the concern needed to be solved immediately.

RECOMMENDATION

The following are the recommendations that were endorsed by the participants:

1. LAC chairpersons may consider conducting seminar and workshop on the relevant topics and activities for the LAC.
2. A LAC model or tool maybe developed to list the topics in LAC sessions and make available of an evaluation form that would serves as success indicator in the LAC session.
3. Future researchers may consider other locale and respondents to validate the current investigation.

ACKNOWLEDGMENT

The author thanks his professor, Antriman V. Orleans, College of Graduate

Studies and Teacher Education Research, Philippine Normal University, for his help and valuable comments of this research paper. The author also thanks Dr. Atweh Bill of PNU for his expertise in reviewing the content of the paper. Lastly, the author is grateful to the three Division Offices, Pasay City Quezon City, and Manila City for participating in this study.

AUTHOR'S PROFILE

Mr. Mark Gil A. Vega is a Ph.D. Student at Philippine Normal University in Manila City, Philippines, where he is pursuing his postgraduate study. He graduated with his Master in Education, Major in Biology at Visayas State University. He worked as a Prof.Ed. teacher and a college instructor. The author already served as a resource speaker on action research and a facilitator in training and workshops on research related seminars.

REFERENCES

An act enhancing the Philippine Basic Education System by strengthening its Curriculum and increasing the number of years for basic education, appropriating funds therefor and for other purposes. https://www.senate.gov.ph/republic_acts/ra%2010533.pdf

Avalos, B. (2011) *Teacher professional development in teaching and teacher education over ten years. T*eaching and Teacher Education, 27, 10-20. https://doi.org/10.1016/j.tate.2010.08.007

Bakkenes, I., Vermunt, J. D., & Wubbels, T. (2010). Teacher learning in the context of educational innovation: Learning activities and learning outcomes of experienced teachers. *Learning and Instruction, 20*(6), 533–548. https://doi.org/10.1016/j.learninstruc.2009.09.001

Baumert, J., Kunter, M., Blum, W., Brunner, M., Voss, T., Jordan, A., Krauss, S., Neubrand, M., & Tsai, Y. (2010). Teachers' mathematical knowledge, cognitive activation in the classroom, and student progress. *American Educational Research Journal,* 47, 133–180.

Do 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. https://www.deped.gov.ph/2016/06/07/do-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/

G. Thomas (2011). A typology for the case study in social science following a review of definition, discourse and structure. Qualitative Inquiry, 17, 6, 511-521

Gess-Newsome, J., (2015). A model of teacher professional knowledge and skill including PCK. In: A. Berry, P. Friedrichsen, and L. John, eds. Re-examining pedagogical content knowledge in science education. London: Routledge, 28–42.

Mendoza, M.G., Peralta, F.G., Anamong, R.L., Bangao, K.K., Carbonel, J.S. (2017). Learning action cell as professional development model: An adaptation of lesson study. World Association of Lesson Studies 2017.https://www.walsnet.org/2017/program/program/pdf/pp-h1.pdf

Parker, M., Patton, K., and O'Sullivan, M., (2016). Signature pedagogies in support of teachers' professional learning. Irish educational studies, 35 (2), 1–17. https://doi:10.1080/03323315.2016.114170

The Learning Action Cell (LAC) as a K to 12 Basic Education Program School-Based Continuing Professional Development Strategy for the Improvement of Teaching and Learning. https://www.deped.gov.ph/wp-content/uploads/2016/06/DO_s2016_035.pdf

COPYRIGHTS