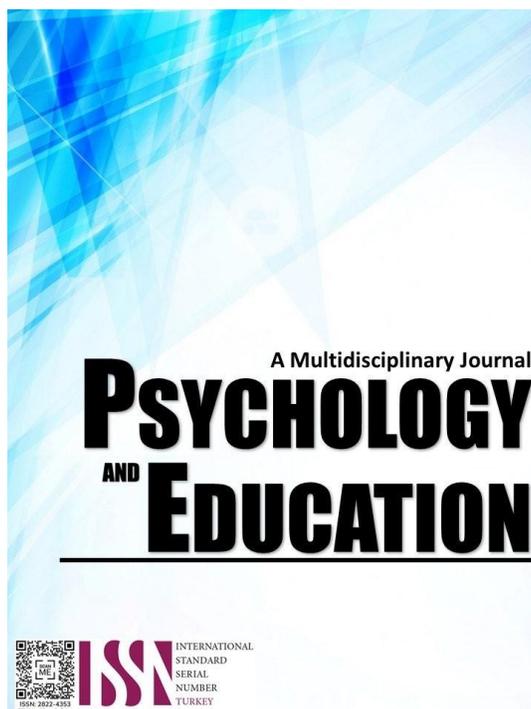


**CHALLENGES AND INTRICACIES ON DELIVERING MELCs IN SCIENCE,
MATHEMATICS AND ENGLISH: BASIS FOR INTERVENTION IN
IMPROVING ASSESSMENT RESULT IN PROGRAM FOR
INTERNATIONAL ASSESSMENT (PISA)**



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

Volume: 52

Issue 6

Pages: 624-638

Document ID: 2026PEMJ5087

DOI: 10.70838/pemj.520601

Manuscript Accepted: 02-07-2026

Challenges and Intricacies on Delivering MELCs in Science, Mathematics and English: Basis for Intervention in Improving Assessment Result in Program for International Assessment (PISA)

May-Annjoy D. Agpuon*

For affiliations and correspondence, see the last page.

Abstract

This study focused on the challenges and intricacies of delivering Most Essential Learning Competencies (MELCs) in Science, Mathematics, and English as a basis for intervention in improving assessment results in the Program for International Assessment (PISA). The study was conducted in Sergio Osmeña Sr. High School, District I, in Quezon City using purposeful random sampling. A researcher-made survey questionnaire, which underwent validity and reliability testing, was used. The items were aligned with DepEd Orders and consisted of three parts: (1) socio-demographic, (2) teachers' understanding rated on a 5-point Likert scale, and (3) a questionnaire about challenges encountered and how they coped. Data collected showed that Science, English, and Mathematics teachers understood the implementation of MELCs. The challenges can be categorized into two major themes: teacher-in-control challenges, which include Pedagogy, Modules, and Attitude towards studying, and teacher-not-in-control challenges, which include Definitive budget of work, Poor internet connection, and Resources. Teachers' coping strategies are also grouped into two themes: self-directed learning, which involves Attending Webinars, Doing Self-Research, and Intensive Intervention, and collaborative learning, which includes Coaching and Mentoring, Integrating Technology in delivering MELCs, and Integrative Assessment. The study employed mixed methods involving quantitative descriptive statistics and qualitative thematic analysis to examine teacher experiences and identify effective interventions for professional development programs. Findings revealed that professional learning competencies include adaptive teaching-learning skills, adaptive parenting, and collaborative teaching-learning skills. Moreover, teachers are still irreplaceable in the digital times. For future study, researchers should use triangulation of data, which may include teachers' responses, students' responses, and COT-RPMS results.

Keywords: *pedagogy, learning delivery modality, assessment, most essential learning competencies, adaptive teaching-learning skill, adaptive parenting skill, collaboration teaching-learning skill, program for international assessment*

Introduction

The Program for International Assessment (PISA) is an annual study conducted by the Organization for Economic Co-operation and Development (OECD) for 15-year-old children in over 80 countries. It provides detailed information on how well children perform in reading, math, and science. The PISA-based Test for Schools is a school-level assessment that's designed to measure the performance of schools across all countries. It is comparable to the results of national assessments in other countries. Using the data, school leaders will be able to set goals and improve their performance. They also create networks and peer-learning communities to support low-performing students. Due to the rapid emergence of knowledge-based economies and the need for schools to improve their performance, comparisons between national and international standards have become more important (OECD, n.d.). The Department of Education focused on the urgent need to improve the country's low ranking in the PISA. Results of the 2019 PISA showed that the Philippines scored 353 out of 500 in math, 357 out of 500 in science, and 340 out of 500 in reading. The country was below the average of the participating countries of the Organization for Economic Cooperation and Development. (Ciriaco, 2019). According to the former DepEd Secretary Briones, through participation in the PISA, the Philippines will be able to establish its baseline in terms of global standards and measure its effectiveness in education reforms. The department again joined the 2022 Cycle of PISA, and Sergio Osmeña Sr. High School, which belongs in District I of the Schools Division of Quezon City, was one of the randomly selected schools that participated. However, due to the adverse effects of the COVID-19 pandemic in the education sector in 2019, the teaching and learning process gap between the transition of face-to-face learning and distance learning setup was investigated. The challenges and intricacies faced by the English, Math, and Science teachers in delivering instruction in these three subjects assessed in the PISA was discussed, which will be a basis for a comprehensive intervention and may be included by the school head in formulating the School Improvement Plan.

The Department of Education believes in UNESCO's view that educational quality, access, and system strengthening cannot be compromised in times of crisis because it will affect human capital (UNESCO, 2017). In relation to the reforms in basic education that focused on Sulong Edukalidad, DepEd released the Most Essential Learning Competencies (MELCs) to be used nationwide for SY 2020-2021. It aims to focus only on the most essential learning competencies to address the impact of COVID-19 in the Philippines, particularly in the basic education sector. It is also part of the Sustainable Development Goals, which aim to develop resilient education systems in the face of unexpected outcomes such as the pandemic. It ensures the progressive learning continuity throughout the curriculum and instruction field. In a clear picture, this study discuss the promotion of quality teaching and learning in the new normal

education set-up in Science, English, and Math as part of the learning areas being assessed for PISA. This is essential, knowing the challenges encountered by the teachers in delivering the Most Essential Learning Competencies in Science, English, and Math, and how they coped, will create discourse as a basis for conducting intervention. It aims to fill the gap of theory and practice in education particularly in pedagogical techniques used in Science, Mathematics and English for distance learning, managing the basic issues of student attributes and needs, the impact of technology upon the instructional cycle, equity of access to interactive delivery systems, and most importantly the role of teachers and students in distance learning which will help improve the status of the school in Program for International Assessment (PISA).

Research Questions

The general problem of this study was: "How may the delivery of Most Essential Learning Competencies in Science, English, and Mathematics be strengthened in the new normal education setting as a basis for intervention in improving assessment results of PISA?" Specifically, this study sought answers to the following questions:

1. What is the level of understanding of Science, English and Mathematics teachers in the implementation of MELCs based on BE-LCP in terms of:
 - 1.1. pedagogy;
 - 1.2. learning delivery modality; and
 - 1.3. assessments?
2. What are the challenges/intricacies experienced by the teachers in the implementation of MELCs in:
 - 2.1. science;
 - 2.2. english; and
 - 2.3. mathematics?
3. How did the teachers cope up with the challenges in the implementation of MELCs in the new normal education setting?
 - 3.1. science;
 - 3.2. english; and
 - 3.3. mathematics?
4. What intervention may be proposed to strengthen the delivery of Most Essential Learning Competencies in Science, English and Mathematics to be included in Intensive Training for Teachers (INSET) or Learning Action Cell (LAC)?

Literature Review

PISA and Educational Quality in the Philippines

In 2018, the Philippines joined the PISA. This was a significant step toward improving the quality of education in the country. According to the PISA 2018 results, the Philippines stood at the bottom of reading and math performance. It is the responsibility of the Department of Education to implement and drive a better education in the Philippines on this. On the basis of that, the agency has determined four key areas that will be reviewed and improved: K to 12; school heads' training; and learning facilities. Not allowing quality and equity: Quality and equity will become an intractable issue in the current "new normal" educational environment, based on factors including teaching strategies, student readiness, and resources, and so forth. Since that sudden changeover from face-to-face to distance education (online and modular) that demands the most efficient use of technology tools and self-paced units and sheets, quality and equity remain elusive. This educational situation in public schools should be studied as to how it may affect students' academic success. This is of interest, particularly in Science, Math, and English, as those are the learning areas targeted in PISA.

Teacher Professional Development and MELCs Implementation

In May 2019, the Schools Division of Quezon City held a training on Pedagogical Retooling in Mathematics, Languages, and Science (PRIMALS) for teachers on how to improve their knowledge and skills in the subjects of Mathematics, English, and Science. The objective of the program was to enhance the teaching capabilities of the school's head teachers and selected teachers/mentors per school for the conduct of school-based Learning Action Cell (LAC). Looking at the setting, the training was done before the shift to distance learning. Changes in educational settings also mean modifying the teaching and learning process. Thus, it is imperative to investigate the adjustments made by teachers to discuss opportunities and challenges they faced in the new normal education setting.

Last October 23, 2021, the Department of Education also launched a Professional Development Program on Assessment and Emerging Literacies with a special focus on PISA to enhance assessment and emerging literacy teaching. Attendance was from teachers across the country. It is the Department's launch run for the 2022 PISA cycle. The Assessment Program aims to develop teachers' ability to assess their students' knowledge and understanding skills. This program comprised five core courses and included: (1) Enhancement of Teachers' Assessment Competencies; (2) Assessment of learning in DepEd; (3) The Philippine K-12 Curriculum and the international large-scale assessments (ILSA); (4) Adapting assessment principles and practices to the emerging literacies; and (5) Monitored application of assessment practice in the classroom setting. The training conducted prior to the "new normal" education environment, as well as the program conducted for the PISA process in the year 2022, is included under the Sulong Edukalidad framework of the Department of Education.

However, Hopfenbeck et. al. (2018) took a look at the lessons learned in a Systematic Review of Peer-Reviewed Articles on the Programme for International Student Assessment. Its instruments are widely criticized, and the impact of the PISA on education systems in participating economies is evident. The key controversies of the PISA involve its test design, results analysis, and score interpretation. These issues are concerned with the efficiency of the instruments and with how data is analyzed. Nonetheless, the emphasis on the primary purpose of PISA, which is to enable the school and the nation as a whole to formulate policies and implement reforms towards development and enhancement. The academic performance of our country in Science, Mathematics, and English in 2018 and the shifting of the "new normal" education setting in 2019 - now are reflected, and the proponent is calling to study how the delivery of Most Essential Learning Competencies at school is strengthened, which is included in the Basic Education-Learning Continuity Plan.

The New Normal and Basic Education Learning Continuity Plan

The COVID-19 pandemic created a shift to a "new normal" in teaching and learning, in which distance learning was the key modality of learning delivery in pursuing education. In relation to the reforms in basic education that focused in Sulong Edukalidad and in response to the challenges brought by the global outbreak of COVID-19 in education sector, the Department of Education released the Basic Education Learning Continuity Plan (BE-LCP) under DepEd Order no.12 s.2020 which covers the essential requirements of education in the time of COVID-19, e.g., most essential learning competencies, multiple learning delivery modalities for teachers, school leaders and learners, required health standards in schools and workplaces, and special activities like Brigada Eskwela, Oplan Balik Eskwela, and partnerships.

Synthesis of Related Studies and Linkage to Present Research

Previous studies have documented various challenges in implementing educational reforms during the pandemic. Cahapay (2020) emphasized the need for rethinking education in the post-COVID-19 era from a curriculum studies perspective, highlighting the importance of adaptive pedagogies. Similarly, Cahyadi (2020) identified six key strategies for online education in Indonesian universities, including technological integration and collaborative learning—themes that parallel the present study's findings. Hodges et al. (2020) distinguished between emergency remote teaching and planned online learning, noting that the abrupt transition created significant pedagogical challenges for teachers accustomed to face-to-face instruction.

These studies collectively explain the critical role of teacher professional development and adaptive competencies during educational disruptions. However, limited research has specifically examined the implementation of MELCs in the Philippine context, particularly in relation to PISA performance improvement. The present study addresses this gap by investigating how Science, English, and Mathematics teachers—subjects directly assessed in PISA—navigate the challenges of delivering MELCs in the new normal setting. Unlike previous studies that focused broadly on pandemic education challenges, this research specifically links MELC implementation difficulties to concrete professional development interventions (INSET/LAC), providing actionable recommendations grounded in teachers' lived experiences. Furthermore, this study's mixed-methods approach, combining quantitative assessment of teacher understanding with qualitative analysis of challenges and coping strategies, offers a comprehensive view not fully captured in prior research.

Theoretical Framework and Policy Context

Looking at the focus of the study, system theory can help understand how teachers deliver the Most Essential Learning Competencies (MELCs) in new normal considering that in delivering instruction, it involves a system which are teachers as field implementers, students and other teaching and non-teaching personnel, available resources, methodologies, strategies, environment and other external factors that are interacting to one another to achieve a certain goal. This gives a holistic view of system theory.

Moreover, the impetus of this study is based on Article IV, Section 2 of the Code of Ethics for Professional Teachers adopted in 1997 through Board Resolution No. 435 by the Board of Professional Teachers. It states that "Every teacher shall uphold the highest standards of quality education, shall make the best preparations for the career of teaching, and shall be at his best at all times in the practice of his profession". This policy encourages teachers to be planners/designers of instruction in the school context in order to achieve quality education standards by preparing Daily Lesson Log (DLL) or Detailed Lesson Plan (DLP) where teaching methodologies and system of assessment should be reflected as stipulated in DepEd Order No. 42, series of 2016 on the Policy Guidelines on Daily Lesson Preparation for the K to 12 Basic Education Program and DepEd Order No. 8, series of 2015 on policy guidelines on classroom assessment for the K to 12 Basic Education Program.

In delivering the most essential learning competencies in the new normal set-up, as reflected in the daily lesson log, there is an anticipation of challenges and adjustments in distance learning with the restriction of physical presence of teachers in conducting online classes, both synchronous and asynchronous. MELCs must be strengthened. Thus, the proponent begins with teachers' level of understanding of the implementation of MELCs in terms of pedagogies, learning delivery modalities, and assessment. It is also important to discuss the challenges and how they coped with them in teaching Science, English, and Math, which could be of use for coming up with professional learning competencies that should be part of the topics in Learning Action Cell (LAC) enclosed in DepEd Order No. 35, s. 2016, also known as The Learning Action Cell (LAC), K to 12 Basic Education Program, School-based Continuing Professional Development Strategy for the Improvement of Teaching and Learning, because DepEd recognized that the quality of

learning is greatly influenced by the quality of teaching through developing professional learning communities.

Methodology

Research Design

The researcher used mixed methods involving quantitative and qualitative approaches to provide a deeper understanding of the research problem. The researcher used quantitative data in determining the Science, English, and Mathematics teachers' level of understanding in the implementation of MELCs amidst the pandemic in the new normal education setting in terms of pedagogy, modality, and assessment system as stipulated in the Basic Education Learning Continuity Plan in light of the COVID-19 pandemic. A descriptive statistics survey was used to give data for analysis. A validated proponent-made survey in Google Form was used as the tool in conducting online surveys. Moreover, the researcher used qualitative data in identifying the challenges/intricacies encountered by the Science, English, and Mathematics teachers and how they coped with them in delivering the Most Essential Learning Competencies (MELCs) in the new normal education setting that will be the basis for intervention.

In processing the quantitative data, the researcher used descriptive statistics, frequency, and percentage to determine the distribution of the socio-demographics of the respondents. In the Likert scale, weighted mean was used in determining the descriptive ratings for the teacher's level of understanding on the implementation of MELCs in the new normal education setting.

In processing the qualitative data, categorizing, coding, and concept were interpreted. Categorizing is the classification of information based on research questions, coding refers to the identification of the common items through the use of codes, and concept is the formulation of a theme (Lichtman, 2006). The first step was an initial reading of all of the responses from Google Forms that were transcribed into a Google sheet to obtain an overall impression and generate relevant codes. Similar codes were organized into themes. In order to increase the consistency of coding, several exemplary quotes that clearly illustrated each constructed theme were included. New themes (if any) were also allowed to emerge inductively during the coding process. To evaluate whether the coding matched with the analysis of the data and to yield consistent results of the study, three qualified and experienced educators served as inter-coders. They were given copies of transcriptions. The analysis of data from these was used as a basis for intervention for PISA results to be included as part of the topics in conducting Learning Action Cell (LAC) or In-service Training for Teachers (INSET) as a means of strengthening the Most Essential Learning Competencies in the new normal education setting.

Respondents

The study was conducted in Sergio Osmeña Sr. High School, a public school in the Schools Division of Quezon City in District I. The sample consisted of 42 Science, English, and Mathematics teachers, specifically 15 Science teachers, 14 Mathematics teachers, and 13 English teachers. The sample of this study was selected through purposive sampling, a technique of identifying a population of interest and developing a systematic way of selecting cases that is not based on advanced knowledge of how the outcomes would appear. The purpose is to increase credibility, not to foster representativeness (Cohen, 2006). This sampling technique will lead to answers to the study concerning Science, English, and Mathematics teachers as field implementers experiencing the new normal setting of the teaching and learning process. All participants were actively teaching during the 2020-2021 school year and had direct experience implementing MELCs in the new normal education setting. The demographic profile of respondents showed diverse years of teaching experience ranging from 2 to 28 years, with a mean teaching experience of 12.5 years.

Instrument

The instrument is a validated proponent-made survey questionnaire. It went through the piloting stage and was then tested after being set electronically using Google Forms, with a consent form appended to it. The survey questionnaire was sent to three education specialists to determine the accuracy of the items included in the survey form in order to be validated. Then, the survey questionnaire was revised based on the comments given by the validators. The items were aligned with DepEd Order no.21 s.2019, as prescribed by Republic Act No. 10533, DepEd Order No.12 s. 2020- BE-LCP and DepEd Order No.08 s. 2015.

The instrument demonstrated high internal consistency and reliability. Cronbach's alpha coefficients were computed for each subscale: pedagogy ($\alpha = 0.88$), learning delivery modality ($\alpha = 0.91$), and assessment ($\alpha = 0.85$), all exceeding the acceptable threshold of 0.70, indicating strong reliability. The overall instrument reliability yielded a Cronbach's alpha of 0.89, confirming that the survey items consistently measured teachers' understanding of MELCs implementation.

The instrument has three parts. The first part of the questionnaire is about socio-demographic variables, including age, gender, position, and years in service. The second part regarding the teachers' understanding and knowledge of the implementation of the MELCs in the new normal rated on a 5-point Likert scale range containing 11 items for pedagogy, 20 items for learning delivery modality and 5 items for assessment system from (5) Fully Understood, (4) Understood, (3) Moderately Understood, (2) Slightly Understood and (1) Not Understood. The third part is an open-ended questionnaire about challenges encountered and how they coped. Pilot testing was conducted with 10 teachers from a similar school context who were not included in the final sample, allowing for refinement of question clarity and appropriateness before full-scale data collection.



Procedure

The researcher sent a message to the school head seeking approval to conduct the research and gather data. Upon approval, coordination was made with the help of the Science, English, and Mathematics Department Head teachers. An invitation to participate in the study was sent online to all Science, English, and Mathematics teachers who are the implementers of MELCs under BE-LCP. The researcher gathered data online. Thus, Google forms were utilized in gathering data, and no face-to-face interviews with the respondents were conducted. The link to the survey in Google Form was sent to teachers via Gmail and Facebook Messenger, depending on the accessibility of the participants, and the responses were transcribed into a Google Sheet to be analyzed.

Data Analysis

Descriptive statistics, including means and standard deviations, were calculated to assess teachers' understanding of MELCs implementation across pedagogy, learning delivery modalities, and assessments. For open-ended responses, thematic analysis was employed to identify commonalities and patterns in challenges and coping strategies, with frequency counts and percentages calculated for each theme across the three subject areas.

Qualitative data were organized by the categories, codes, and concepts proposed in Lichtman's (2006) analysis. Responses from Google Forms were translated to Google Sheets for their first coding and theme generation. In order to achieve consistency and reliability, three experienced educators served as inter-coders. Both pre-determined and emergent themes were inductively developed during the coding.

Key findings are represented through descriptive qualitative excerpts. In responding to Teacher-in-Control Challenges, one teacher (8 years) in the sciences mentioned, "Conducting laboratory experiments virtually is extremely difficult... Students can only watch demonstrations but are not able to manipulate materials themselves" whereas another teacher in Mathematics (12 years) replied, "It is hard to teach mathematical problem-solving through modules, because I cannot see where students made mistakes instantaneously." For Teacher-Not-in-Control Challenges, an English teacher (6 years) reported, "Many students do not have access to the internet. We move to printed modules, but this delays feedback and hampers interactive learning." For coping strategies, a Mathematics teacher (15 years) reported that "I joined multiple webinars with Google Classroom and Zoom facilitation to adapt my teaching strategies," while a Science teacher (4 years) described "Our department hosts weekly virtual meetings in which we share strategies that worked—senior teachers will teach the content depth and we will help them with technology navigation." These results guided suggested interventions to INSET/LAC programs to reinforce MELCs provision.

Ethical Considerations

The research followed ethical practices. It provided clear guidance on who was involved, and informed consent was obtained from all participants. All participants were made aware of their right to withdraw from the study at any time without penalty, and confidentiality of answers was maintained during the study, in which all data was kept confidential and anonymous and stored in a secure place. Identifiable information was available only to the researcher; all data were used for research purposes only. The study had approval from the school administration before it was carried out.

Results

This section presents the findings according to the study's four research questions. Descriptive statistics, including means, were computed for quantitative data. For qualitative data, thematic analysis employing categorizing, coding, and concept interpretation was used, with three qualified educators serving as inter-coders to ensure consistency.

Research Question 1: Level of Understanding of Science, English and Mathematics Teachers in the Implementation of MELCs Based on BE-LCP in terms of Pedagogy

With 4.24 as the Mean, the survey indicates that the teachers understood the implementation of MELCs amidst the pandemic in terms of pedagogy based on DepEd Order No.12 s. 2020-BE-LCP and Deped Order No.21 s.2019 as prescribed by Republic Act No. 10533.

Table 1 shows the mean and descriptive interpretation of responses of Science, English, and Mathematics teachers in the implementation of MELCs amidst the pandemic in terms of pedagogy.

Table 1. *Level of Understanding of Science, English and Mathematics Teachers in the Implementation of MELCs in Terms of Pedagogy*

<i>Items</i>	<i>Mean</i>	<i>Descriptive Interpretation</i>
1. K to 12 curriculum has streamlined a total number of competencies in all learning areas from Kindergarten to Grade 12 (excluding the technical-vocational-livelihood/TVL specializations in Senior High School) to 5,689 from the original 14,171 or a reduction by 60 percent.	4	Understood
2. There are 187 most essential learning competencies that were streamlined from 284 learning competencies of the Science curriculum guide, or a reduction by 34 %.	3.875	Understood
3. I know that we are encouraged to contextualize the MELCs in order to accommodate the varying contexts of	4.375	Understood



learners, teachers, learning environment and support structures considering both the content and performance standards.

4. I know that MELCs should be taught through meaningful activities and should be learner-centered, inclusive, and developmentally relevant and appropriate.	4.375	Understood
5. I know that designed activities in MELCs should also include the procedures and processes on how and when to apply those knowledge and skills in a given context.	4.25	Understood
6. I know that MELCs should be taught in a manner that must be responsive and research-based.	4.25	Understood
7. I know that in teaching MELCs, it should be culture-sensitive, which means that instruction must respect the cultural identities of the learners.	4.25	Understood
8. I know that in teaching MELCs, pedagogical approaches that are constructivist, inquiry-based, reflective, collaborative, differentiated and integrative should be used.	4.375	Understood
9. I know that in teaching MELCs, spiral progression approach should be used to ensure mastery of knowledge and skills after each level.	4.25	Understood
10. I know that in teaching MELCs, it should be flexible enough to enable schools to localize, indigenize and to enhance it based on their respective educational and social contexts.	4.375	Understood
Total Mean	4.24	Understood

Level of Understanding of Science, English and Mathematics Teachers in the Implementation of MELCs Based on BE-LCP in terms of Learning Delivery Modality

With 4.42 as the Mean, the survey indicates that the teachers understood the implementation of MELCs amidst the pandemic in terms of learning delivery modality based on DepEd Order No.12 s. 2020-BE-LCP.

Table 2 shows the mean and descriptive interpretation of responses of Science, English, and Mathematics teachers in the implementation of MELCs amidst the pandemic in terms of learning delivery modality.

Table 2. *Level of Understanding of Science, English and Mathematics Teachers in the Implementation of MELCs in Terms of Learning Delivery Modality*

<i>Items</i>	<i>Mean</i>	<i>Descriptive Interpretation</i>
1. I know that face-to-face learning requires live association between teacher and student.	4.75	Fully Understood
2. I know face-to-face options may also be feasible in very low risk areas such as the geographically isolated, disadvantaged, and conflict affected areas (GIDCA) with no history of infection of COVID-19.	4	Understood
3. I know that any face-to-face learning delivery must have proper risk assessment and must adhere to the health protocols in place.	4.75	Fully Understood
4. I know that potential learning spaces in the community near the school may be explored to add spaces for the conduct of classes with the appropriate social distancing.	4.25	Understood
5. I know that in areas under the moderate and high-risk severity grading, face-to-face is not possible.	4.75	Fully Understood
6. I know that modular distance learning involves individualized instruction that allows learners to use SLMs in print or digital format, whichever is applicable in the context of the learner, and other learning resources like learner’s materials, textbooks, activity sheets, study guides, and other study materials.	4.625	Fully Understood
7. I know that the teacher takes the responsibility of monitoring the progress of the learners in modular distance learning.	4.625	Fully Understood
8. I know that the learners may ask assistance from the teacher via email, telephone, text message/instant messaging, etc in modular distance learning.	4.625	Fully Understood
9. I know that teachers shall do home visits to learners needing remediation or assistance in modular distance learning.		
10. I know that any member of the family or other stakeholders in the community needs to serve as para-teachers (teacher assistant) in modular distance learning.	4.5	Fully Understood
11. I know that in online distance learning, the teacher acts as facilitator, engaging learners' active participation through the use of various technologies accessed through the internet while they are geographically remote from each other during instruction.	4.625	Fully Understood
12. I know that online distance learning allows synchronous instruction.	4.5	Fully Understood
13. I know that synchronous online distance learning is more interactive than the other types of distance learning and the responses are in real-time.	4.5	Fully Understood
14. I know that learners may download materials from the internet, complete and submit assignments online, and attend webinars and virtual classes in online distance learning. This is practiced effectively by using a Learning Management System or related technologies.	4.75	Fully Understood
15. I know that distance learning modality is most viable for independent learners, and learners must be supported by periodic supervision of parents or guardians.	4.375	Understood
16. I know that TV/Radio-Based Instruction utilizes SLMs converted to video lessons for Television-Based Instruction and SLMs converted to radio scripts for Radio Based Instruction.	4.25	Understood
17. I know that blended Learning refers to a learning delivery that combines face-to-face with any or a mix of online distance learning, modular distance learning, and TV/Radio-based Instruction.	4	Understood



18. I know that blended learning will enable the schools to limit face-to-face learning, ensure social distancing, and decrease the volume of people outside the home at any given time.	4.25	Understood
19. I know that homeschooling is an ADM that aims to provide learners with quality basic education that is facilitated by qualified parents, guardians, or tutors who have undergone relevant training in a home-based environment.	4.375	Understood
20. I know that homeschooling allows families to educate according to their personal faith, philosophy, and values, and to adjust learning schedules around family schedules and circumstances.	4.375	Understood
Total Mean	4.42	Understood

Level of Understanding of Science, English and Mathematics Teachers in the Implementation of MELCs Based on BE-LCP in terms of Assessments

With 4.213 as the Mean, the survey indicates that the teachers understood the implementation of MELCs amidst pandemic in terms of assessments based on DepEd Order No. 30, s. 2020-Interim Guidelines for Assessment and Grading in Light of the Basic Education Learning Continuity Plan.

Table 3 shows the mean and descriptive interpretation of responses of Science, English, and Mathematics teachers in the implementation of MELCs amidst the pandemic in terms of assessments.

Table 3. *Level of Understanding of Science, English and Mathematics Teachers in the Implementation of MELCs in Terms of Assessments*

Items	Mean	Descriptive Interpretation
1. I know that assessment should be done in paper-based, offline, or online assessment format, whichever is appropriate to the context and needs of the learners, to enable them to participate fully in the assessment process and be assessed fairly.	4.5	Fully Understood
2. I know that summative tests shall be administered in school for learners on F2F learning and blended learning. For those who are on distance learning, summative tests may be administered when physical classes shall be allowed and possible in their respective areas or through appropriate online platforms.	4.5	Fully Understood
3. I know that in order to capture evidence of learning, learners shall prepare their portfolio/e-portfolio to include written works and products and performances whether in hardcopy, softcopy, or a combination of these and shall be assessed using rubrics.	4	Understood
4. I know that quarterly assessment which is 20 % is no longer part of the grading system for this school year and its previously determined weight is distributed equally into Written Works and Performance Tasks, allotting an additional 10 % to each component.	4.5	Fully Understood
5. I know that quarterly assessment shall not be administered and the days allotted for this may be used for the presentation of major performance for the quarter that addresses the performance standard.	4.375	Understood
6. I know that testimonies of parents and other adults in the family/learning facilitators, and community leaders shall form part of holistic assessment.	4	Understood
7. I know that teachers may do horizontal integrative assessment for academic ease.	3.875	Understood
8. I know that teachers must prepare a minimum of four (4) written works and four (4) performance tasks within the quarter, preferably one in two weeks integrating two or more competencies.	4.25	Understood
9. I know that relevant assessment resources in remote assessment can be broken down into low-, medium- and high-technologies depending on the person administering the assessment.	3.875	Understood
10. I know that teachers can use self-monitoring tools to record evidence of learning and to give feedback to the learners and parents, however, it is not mandatory but highly	4.25	Understood

Research Question 2: Challenges/Intricacies Experienced by Teachers in the Implementation of MELCs

A thorough and rigorous reading and analysis of teachers' responses relative to the challenges/intricacies they experienced in the implementation of MELCs resulted in two major themes: Teacher-in-Control Challenges and Teacher-Not-in-Control Challenges. Table 4 presents the summary of challenges organized by themes, codes, and subject areas.

Table 4. *Challenges/Intricacies Experienced by Teachers in the Implementation of MELCs in Science, English, and Mathematics*

Theme	Code/Category	Science Teachers	English Teachers	Mathematics Teachers
Teacher-in-Control Challenges	Pedagogy	Laboratory classes very difficult to execute in virtual setting	Difficult to deliver lessons effectively	Students not well technically equipped
		MELCs involving mathematical operations tough to deliver remotely	Many factors affect learning process (poor internet, unavailable gadgets, difficulty assessing performance)	Shifting delivery from traditional to online challenging
		Hard to provide learner-centered activities with passive students	Need to give more focus on reading due to lack of	Difficult to teach lessons without appropriate teaching



		comprehension skills	strategies
	Students rarely give answers showing mastery in critical thinking questions		
	Students copying answers from classmates		
	Modular students having hard time understanding content; high reading ability required	Instructions and materials not learner-centered and self-paced	No social interaction; less communication with learners
	Students have minimal academic support from parents	Modules need to be self-paced	Students approached only via Google Meet or Facebook Messenger
Modules	Time management issues with prerequisite topics		
	Lack of standardized modules for modular and online modality		
	Teachers forced to prepare self-learning modules consuming much time		
	Student honesty and integrity issues in answering activities	Students lack interest and motivation in studying	Many things to consider including attitude of students
Attitude Towards Studying	Students lack eagerness to study; non-responsive to follow-up	Students feel overwhelmed with many competencies to learn	Students' difficulties in following instructions
	Students active online but rarely submit output	Laziness and negligence affect learning	Lack of interest
	Students don't participate in synchronous classes; non-responsive	Time constraints, learner disinterest	Some parents answering modules instead of students
	Competencies not easily understood in single learning session; timetable should be extended	Time constraints, learner disinterest	Lack of time for mastery in each MELC
	Hard time following time frame even though competencies decreased	Students haven't mastered skills and competencies	Spiral approach does not show mastery; always reteaching Grade 7 topics in Grade 10
Teacher-Not-in-Control Challenges	Definitive Budget of Work for Delivering MELCs	Difficulty bridging gaps between grade 8 and 9 MELCs; prerequisite concepts not discussed due to lockdown	Many competencies to learn but students overwhelmed
		Challenging to teach one MELC without prerequisite MELC	Limited time
			Too many competencies to teach
			MELCs not suitable for one week
Poor Internet Connection	Students disconnected during class		Students' difficulties with internet connectivity
	Students using limited mobile data (100-200MB for 20 pesos)	Skills need to be developed; resources especially internet connection	Health risk concerns
	Poor internet prevents students from joining despite lesson preparation		
	Audio not clear; choppy sound; video		



	won't play due to bad connection		
	Students cannot perform activities/experiments; no available resources at home		Too many things to consider including resources
Resources	Materials/laboratory tools available in school but not at home	Skills need to be developed; resources especially internet connection	More challenges on contact with learners; cases of almost no contact possible
	Internet load from LGU not delivered on time; students unable to submit outputs		No social interaction; less communication via Google Meet or Facebook Messenger

Research Question 3: How Teachers Coped with Challenges in the Implementation of MELCs

Data collected from interviews showed that Science, English and Mathematics teachers' coping strategies can be categorized into two major themes: Self-Directed Learning and Collaborative Learning. Table 5 presents the summary of coping strategies organized by themes, codes, and subject areas.

Table 5. Coping Strategies Employed by Teachers in the Implementation of MELCs in the New Normal Education Setting

Theme	Code/Category	Science Teachers	English Teachers	Mathematics Teachers
Self-Directed Learning	Attending Webinars	Attended series of webinars and trainings on effective applications, software, tools and platforms for pedagogical use	Read and attended webinars and trainings	
		Recognized need to learn and unlearn strategies from face-to-face to distance learning	Figured out teaching style from webinar learnings	
		Attended webinars inside and outside school to equip with appropriate Science teaching strategies	Learned to integrate technology and conduct integrative assessment in webinars using modules anchored to MELCs	Attended webinars with self-study
		Attended Vibal Publishing Group webinars via Facebook and YouTube		
Doing Research		Watched YouTube, read online articles about online modalities		
		Researched MELCs framework and compared to previous curriculum guide	Read and attended webinars and trainings	Read and researched about distance learning Had self-study
		Studied competencies being merged, deleted, and rephrased		
		Created Facebook group chat for communication with parents and students	Inspired students to take up roles and responsibilities	Explained instructions with examples
Intensive Intervention		Conducted online kumustahan quarterly to ensure student needs met	Inculcated sense of responsibility before, during, after lessons	Called attention of local government unit for internet connection support
		Spent ample time reviewing students before proceeding to next LC	Incorporated simple performance tasks to assess learning despite connectivity issues	Encouraged students to focus on studies Maintained as much contact with students as possible
		Used familiar words/terms to simplify discussion	Gave reading activities to practice comprehension skills	
		Implemented measures to ensure academic integrity; encouraged group projects	Used teaching strategies for student engagement	Assisted those in need



		Provided clear, easy-to-follow instructions			
		Maximized chat box in Google Meet			
		Selected module activities suitable for online platform			
		Received coaching/mentoring from supervisors and school experts	Gave interventions while integrating technology aligned with MELCs	Conducted LAC sessions for integrative assessment	
		Meetings and forums for potential solutions and interventions	Participated in department LAC sessions	Used Budget of Work in LAC sessions with help from master teachers	
Collaborative Learning	Coaching and Mentoring	Collaborated in department through LAC sessions	Proper planning of activities		
		Studied MELCs and digested competencies being merged, deleted, rephrased	Collaborated with other teachers for activities to be merged as one output		
		Grouped by grade level to develop appropriate strategies during Learning Delivery Modality Course			
			Learned interactive sites and tools available on web	Integrated technology aligned with MELCs	Used interactive tools in teaching
			Tried different platforms for online classes	Participated in LAC sessions	Created video lessons
			Participated in simulation before class opening	Learned technology integration and integrative assessment in webinars	Applied new technologies and applications to cope with challenges
			Head Teacher encouraged ICT training through simulation		
	Integrating Technology in Delivering MELCs	Maximized PowerPoint slides and instructional videos			
		Created personal YouTube account for Science videos aligned with MELCs			
		Selected activities fitting online platform and learner types			
		Prepared self-paced modules			
		Collaborated quarterly on integrative assessment per grade level	Collaborated for activities to merge as one output	Simplified activities	
		Decided which MELCs can be integrated with other subjects	Incorporated performance tasks to verify learning	Collaborated with other teachers in giving activities	
	Integrative Assessment	Conducted horizontal integrative assessment (e.g., Science 8; English 8; TLE 8)	Made tasks fun and manageable through technology integration and integrative assessment	Conducted an integrative assessment through LAC sessions	
		Conceptualized integrative tasks presented in LAC sessions			

Research Question 4: Proposed Intervention to Strengthen Delivery of MELCs

Based on the characteristics of competency and challenges encountered by the Science, English, and Mathematics teachers, the findings of this study showed that there is a need for three professional learning competencies to be included in Intensive Training for Teachers (INSET) or Learning Action Cell (LAC) to strengthen the delivery of MELCs in the "new normal" education setting:

Adaptive Teaching Competency

Adaptive teaching competency encourages learning experiences that are custom-made and delivered to meet the needs of individual students. This involves facility-driven systems and assessment-driven systems that provide dynamic feedback for instructors to modify course content. Adaptive teaching systems customize pedagogies, assessment methods, and instructional materials, providing students with feedback that fits their needs.

For students using modules, adaptive teaching systems can be used where teachers create and devise offline activities that meet student needs according to their learning style, with teachers providing feedback on when enrichment is needed before moving to the next learning competency. Adaptive teaching competency incorporates self-paced instructions with simplified versions, supporting competency-based theory, which focuses on demonstrating mastery rather than measuring learning by time.

The "Teachback" method, originally developed by Gordon Pask (1976), supports this competency. In this method, two or more people discuss complex topics in a shared effort to improve their knowledge. More experienced students teach less knowledgeable students what they learned, then explain differently if needed. Teachers pair students for discussions, monitor understanding through assessing the number who understand versus those needing enrichment, and then conduct remediation classes both synchronously and asynchronously. Creating group learning cells among students helps deliver MELCs in distance or blended learning settings, fostering logical and critical thinking aligned with K-12 curriculum goals.

Adaptive learning uses data-driven approaches, analyzing student interactions for remediation. It bridges gaps in learning environments by integrating everyday experiences into content areas, allowing learners to use available resources that integrate their experiences. This supports constructivism by giving students opportunities to explore their surroundings to empower concrete and critical thinking.

Adaptive Parenting

Adaptive parenting addresses external factors by engaging parents in the new normal education setting. Parents create practical learning aspects from home by establishing expectations and routines for children, setting dedicated physical spaces for school-focused activities that serve as learning home environments.

Because parents are not full-time teachers, they foster self-directed learning and support it by monitoring the child during the morning and evening if working. Basic monitoring can include "What is/was your schedule today?" or "What did you discover today?" Parents point out areas of conflict and friction that children may not know how to manage, reinforcing the belief that kids should be free to pursue things they love and draw on as their talents, without constant pressure, while maintaining universal values. Parents should receive orientation, workshops, and webinars on adaptive parenting, holding them accountable and responsible for their kids' academic progress.

Collaborative Teaching-Learning Skill

This competency is focused on coaching, mentoring, technology integration, and integrative assessment in teachers. During the class simulations, teachers learn new behaviors and gain knowledge by observing the modeled behavior of peers for professional development. Junior teachers are partnered with senior teachers to assist seniors with web-based work and help with technology use, while also gaining knowledge about materials, references, and assessments from seniors. Technology Integration enriches learning experiences by integrating virtual classrooms to develop rich personalized environments.

Technological Pedagogical Content Knowledge (TPCK) Theory connects knowledge of educational content and technological knowledge and illustrates the ways in which technology supports pedagogy. Integrative assessment integrates multiple modules and levels into a single assessment, allowing students to learn higher-order behaviors through integration of knowledge and skills across content areas and subjects, using the knowledge acquired as classroom lessons to create real-world learning that aligns with the principles of constructivism.

Discussion

The principal goal of this research is to evaluate the challenges and intricacies in delivering MELCs as a basis for PISA improvement intervention. Results showed important implications for the four research questions, consistent with well-known educational theories and offering a future direction for professional development.

Understanding of MELCs Implementation (RQ1)

Teachers of Science, English, and Mathematics demonstrated high levels of understanding across pedagogy ($M= 4.24$), learning delivery modality ($M= 4.42$), and assessment ($M= 4.213$), indicating comprehension of policy frameworks stipulated in DepEd Orders

despite struggling with the abrupt shift to distance learning. This knowledge serves as an important foundation for successful implementation, harmonizing with competency-based theory (Le et al., 2014; Lidwien Sturing et al., 2011), which explains that clear, measurable objectives shape content and skills for deeper learning.

Teacher-in-Control and Teacher-Not-in-Control Challenges (RQ2)

The study identified two major challenge themes. Teacher-in-Control Challenges encompassed pedagogy-related issues, module development concerns, and student attitudes toward studying. Teacher-Not-in-Control Challenges included a definitive budget of work, poor internet connection, and resource limitations.

Applying system theory (Daft, 2010; Mwangeka & Trainer, 2020), MELCs serve as inputs and instruction delivery as the transformation process. To deliver MELCs effectively, teachers must strengthen their knowledge of online tools and teaching strategies that empower collaboration and interaction, leading to positive assessment outcomes showing evidence of learning. The abrupt switch to distance learning proved particularly stressful for teachers accustomed to face-to-face instruction for many years (Hodges et al., 2020). Teachers need equipment and training in navigating educational websites and using appropriate tools to engage students.

Technology integration relates to Technological Pedagogical Content Knowledge (TPCK) theory, which links educational content knowledge to technological knowledge, showing how technology can enhance teaching practice. However, pedagogy must be appropriate to target learning objectives while using technology to aid student learning. Teachers must combine subject knowledge with expertise in making content understandable to students.

Module development and content validation represent transformation processes within the system. Despite no standard modules, teachers were able to resolve problems within a relatively brief preparation period. This is relevant to constructivism, i.e., the idea that teachers are engaged participants in the learning process through the creation of supplementary materials, which are used to help students link background knowledge with new learning.

Student attitude challenges fit with behaviorism theory, where behavior issues affect the performance of students in the classroom. Home environments greatly influence students' behavior. Building foundations for self-directed learning lays the foundation for the quality of remote education. Parental involvement in shaping students' attitudes is essential; parents could assist children to set goals, schedule, manage, and cope with time and emotions (Education Endowment Foundation, 2023).

The second challenge theme concerned factors outside teacher control: Definitive Budget of Work, timing constraints, poor internet connectivity, and resource limitations. Teacher-competency challenges, such as limited timelines despite reduced competencies; difficulty bridging gaps of prior knowledge not taught due to lockdown; teaching competencies without prerequisites, particularly affected Science and Mathematics due to their spiral curricula, where lessons interlink and interconnect. Competency-based theory states that the objectives should be to address student needs instead of time-based measures of learning by focusing on what was learned, as content and skills (Torres et al., 2018).

The components of system theory needing intervention include connectivity problems and limited resources. It is also important to develop alternative plans of teaching targeted at access to the internet. Engaging with accessible forms of platforms, particularly for students lacking online access, fits this with TPCK theory, where what works in terms of pedagogy and technology does not have to be internet-enabled. Teachers can develop activities that utilize home resources, creating a learning space that is relevant to the school or community, even if access to computers or the internet is absent.

Self-Directed and Collaborative Learning Coping Strategies (RQ3)

Coping strategies of teachers revealed two themes: Self-Directed Learning (attending webinars, conducting research, intensive intervention) and Collaborative Learning (coaching and mentoring, integrating technology, integrative assessment).

Attending webinars shows the ability of teachers to handle the new normal environment. The constructivist framework, for example, allows for environments where learners explore and develop content; in the study, teachers as learners develop a deeper understanding through webinars. Conducting self-research fosters understanding and knowledge through self-awareness and knowledge seeking that leads to informed decisions. It has provided teachers with a mechanism for coordinating strategy around curriculum objectives, a framework named the newly developed MELCs.

Intensive interventions mean helping all students with the right kinds of interventions; they show teachers are willing to modify, based on hard evidence. Bridging learning gaps supports constructivist theory, where teachers determine students' difficulties and misconceptions and choose appropriate methods for learners' learning. These strategies align with Cahyadi's (2020) six strategies for online education in Indonesian Islamic universities.

Both coaching and mentoring are supportive of behaviorism theory through observations and example-based learning of peer behavior. Teachers observed colleagues delivering MELCs using appropriate strategies and technology, learning diverse approaches to learning. These findings also echo Brinkley-Etzkorn's (2018) conclusion about online classroom behavior. Collaboration between junior and senior teachers: working together, and juniors doing web-based work while seniors share resources and assessment knowledge.

The integrative assessment combines several modules by consolidating them in one assessment, which promotes higher-order and knowledge-intensive learning in a way that allows young learners to integrate knowledge and skills of various areas (the student with knowledge of a subject). This is in line with constructivism, which is the idea that students will remember and understand information. Learning is a social activity performed with others (Dewey, 1938); success requires sharing and negotiating socially based knowledge. According to Vygotsky (1978), children are social beings, and their development is affected by how they interact socially.

Proposed Interventions (RQ4)

Analysis revealed three professional learning competencies for INSET/LAC: Adaptive Teaching Competency, Adaptive Parenting, and Collaborative Teaching-Learning Skill. Adaptive Teaching Competency fosters learning opportunities that are tailored to meet the unique needs of individual students with facility- and assessment-led systems that use learning feedback to guide content changes. To support this competency, the "Teachback" method (Pask, 1976), which relies on shared discussion to increase knowledge, is used. Group learning cells, as mentioned above, enable MELCs to be deployed in distance and blended learning environments, which facilitates developing logical and critical skills aligned with K-12 curriculum objectives. That satisfies the purpose of the theory, a competency-based approach to mastery over time-based learning measures.

Adaptive Parenting addresses external factors by engaging parents in new normal education, establishing expectations, routines, and dedicated learning spaces at home. Simple monitoring and parent orientation workshops give parents accountability in their children's academic progress.

Collaborative Teaching-Learning Skill emphasizes coaching, mentoring, technology integration, and integrative assessment among teachers. Through observation during simulations, teachers learn new behaviors by modeling peer practices. TPACK theory discusses how technology positively influences teaching practice; integrative assessment promotes higher-order learning behaviors, aligning with the fundamentals of constructivism.

Conclusions

This study investigated challenges and intricacies in delivering Most Essential Learning Competencies (MELCs) in Science, English, and Mathematics as a basis for PISA improvement intervention. Findings revealed that teachers demonstrated high understanding of MELC implementation across pedagogy (Mean=4.24), learning delivery modality (Mean=4.42), and assessment (Mean=4.213) dimensions. The challenges faced were categorized into two major themes: Teacher-in-Control Challenges (pedagogy, modules, attitude toward studying) and Teacher-Not-in-Control Challenges (definitive budget of work, poor internet connection, resources). Teachers' coping strategies were similarly organized into two themes: Self-Directed Learning (attending webinars, doing research, intensive intervention) and Collaborative Learning (coaching and mentoring, integrating technology, integrative assessment). The two-theme frameworks create opportunities for intervention through identifying specific barriers that teachers can easily engage with, but those in need of systemic support cannot.

The study identified three essential professional learning competencies for inclusion in Intensive Training for Teachers (INSET) or Learning Action Cell (LAC): adaptive teaching-learning skill, adaptive parenting, and collaborative teaching-learning skill. These competencies work together in an integrated manner that addresses both teacher-controlled and systemic challenges that are linked to teachers, students, parents, and resources toward the same educational objectives. The findings demonstrated that teachers are irreplaceable in an age of digitally mediated learning, as human elements of motivation, relationship-building, and responsive instruction cannot be replicated by technology alone. In future studies, triangulation of data is highly recommended, collecting responses from teachers, students, and parents, alongside Classroom Observation Tool (COT) and Results-based Performance Management System (RPMS) results, to gain a more thorough understanding of MELC implementation and ensure that teacher-reported experiences can be verified through different domains.

References

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bell, J., & Waters, S. (2014). *Doing your research project: A guide for first-time researchers*. McGraw-Hill Education.
- Brinkley-Etz Korn, K. (2018). Learning to teach online: Measuring the influence of faculty development training on teaching effectiveness through a TPACK lens. *The Internet and Higher Education*, 38, 28–35. <https://doi.org/10.1016/j.iheduc.2018.04.004>
- Caffarella, R. S., & Merriam, S. B. (1999). *Learning in adulthood: A comprehensive guide*. Jossey-Bass.
- Cahapay, M. B. (2020). Rethinking education in the new normal post-COVID-19 era: A curriculum studies perspective. *Aquademia*, 4(2), Article ep20018. <https://doi.org/10.29333/aquademia/8315>
- Cahyadi, A. (2020). COVID-19 outbreak and new normal teaching in higher education: Empirical resolve from Islamic universities in Indonesia. *Dinamika Ilmu*, 20(2), 255–266. <https://doi.org/10.21093/di.v20i2.2545>

- Ciriaco, C. M. (2019, December 6). DepEd vows to improve the quality of education after the PISA showing. *Business Mirror*. <https://businessmirror.com.ph/2019/12/06/dep-ed-vows-to-improve-quality-of-education-after-pisa-showing/>
- Cohen, D., & Crabtree, B. (2006). *Qualitative research guidelines project*. Robert Wood Johnson Foundation. <http://www.qualres.org/>
- Daft, R. L. (2010). *Management* (9th ed.). South-Western Cengage Learning.
- Department of Education. (2015). DepEd Order No. 8, s. 2015: Policy guidelines on classroom assessment for the K to 12 basic education program. <https://www.deped.gov.ph/2015/04/01/do-8-s-2015-policy-guidelines-on-classroom-assessment-for-the-k-to-12-basic-education-program/>
- Department of Education. (2016). 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. <https://www.deped.gov.ph/2016/06/10/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/>
- Department of Education. (2016). DepEd Order No. 42, s. 2016: Policy guidelines on daily lesson preparation for the K to 12 basic education program. <https://www.deped.gov.ph/2016/08/16/do-42-s-2016-policy-guidelines-on-daily-lesson-preparation-for-the-k-to-12-basic-education-program/>
- Department of Education. (2019). DepEd Memorandum dated April 5, 2019: Division training on pedagogical retooling in mathematics, languages and science for junior high school (PRIMALS-JHS). Schools Division of Quezon City.
- Department of Education. (2019). DepEd Order No. 21, s. 2019: Policy guidelines on the K to 12 basic education program. <https://www.deped.gov.ph/>
- Department of Education. (2020). DepEd Order No. 12, s. 2020: Adoption of the basic education learning continuity plan for SY 2020-2021 in light of the COVID-19 public health emergency. <https://www.deped.gov.ph/2020/06/19/june-19-2020-do-012-2020-adoption-of-the-basic-education-learning-continuity-plan-for-school-year-2020-2021-in-the-light-of-the-covid-19-public-health-emergency/>
- Department of Education. (2020). DepEd Order No. 30, s. 2020: Interim guidelines for assessment and grading in light of the basic education learning continuity plan. <https://www.deped.gov.ph/>
- Department of Education. (2020, February 14). Sulong EduKalidad is a move to innovate PH education, says Briones [Press release]. <https://www.deped.gov.ph/2020/02/14/sulong-edukalidad-a-move-to-innovate-ph-education-says-briones/>
- Department of Education. (2021, October 26). DepEd launches the professional development program on assessment and emerging literacies with focus on PISA [Press release]. <https://www.deped.gov.ph/2021/10/26/dep-ed-launches-the-professional-development-program-on-assessment-and-emerging-literacies-with-focus-on-pisa/>
- Dewey, J. (1938). *Experience and education*. Macmillan Company.
- Education Endowment Foundation. (2023). Supporting parents to learn at home. <https://educationendowmentfoundation.org.uk/education-evidence/guidance-reports/supporting-parents>
- Hara, S. R., & Burke, D. J. (1998). Parent involvement: The key to improved student achievement. *The School Community Journal*, 8(2), 9–19.
- Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., & Bond, M. A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- Hopfenbeck, T. N., Lenkeit, J., El Masri, Y., Cantrell, K., Ryan, J., & Baird, J. (2018). Lessons learned from PISA: A systematic review of peer-reviewed articles on the programme for international student assessment. *Scandinavian Journal of Educational Research*, 62(3), 333-353. <https://doi.org/10.1080/00313831.2016.1258726>
- Le, C., Wolfe, R. E., & Steinberg, A. (2014). The past and the promise: Today's competency education movement. *Jobs for the Future*.
- Lichtman, M. (2006). *Qualitative research in education: A user's guide*. Sage Publications.
- Lidwien Sturing, Harm, J. A., Mulder, M., & de Bruijn, E. (2011). The nature of study programmes in vocational education: Evaluation of the model for comprehensive competence-based vocational education in the Netherlands. *Vocations and Learning*, 4(3), 191-210. <https://doi.org/10.1007/s12186-011-9059-4>
- Mwangeka, R., & Trainer, E. (2020). Application of system's theory in education. *International Journal of Education and Research*, 8(1), 1-10.
- Nessipbayeva, O. (2013). The competencies of the modern teacher. (Conference presentation). Suleyman Demirel University.

Organisation for Economic Co-operation and Development. (n.d.). Programme for International Student Assessment (PISA). <https://www.oecd.org/pisa/>

Pask, G. (1976). Conversational techniques in the study and practice of education. *British Journal of Educational Psychology*, 46(1), 12-25. <https://doi.org/10.1111/j.2044-8279.1976.tb02981.x>

Peñalba, I. (2013). Macrostructural moves and metadiscourse in research genres [Doctoral dissertation, De La Salle University-Dasmariñas]. DLSU-D Institutional Repository.

Professional Regulation Commission. (1997). Code of ethics for professional teachers (Resolution No. 435, s. 1997, Article IV, Section 2). <https://www.prc.gov.ph/sites/default/files/CODE%20OF%20ETHICS%20FOR%20PROFESSIONAL%20TEACHERS.pdf>

Tang, K. S. (2010). Parent involvement and student academic performance: A multiple mediational analysis. *Journal of Prevention & Intervention in the Community*, 38(3), 183-197. <https://doi.org/10.1080/10852352.2010.486297>

The Learning Accelerator. (2020). How can I help students build a strong foundation for self-direction in remote learning? <https://practices.learningaccelerator.org/>

Torres, A. S., Brett, J., Cox, J., & Greller, S. (2018). Competency education implementation: Examining the influence of contextual forces in three New Hampshire secondary schools. *AERA Open*, 4(2), 1-23. <https://doi.org/10.1177/2332858418782883>

UNESCO. (2017). Education for sustainable development goals: Learning objectives. UNESCO Publishing. <https://unesdoc.unesco.org/ark:/48223/pf0000247444>

Valamis. (2023). What is collaborative learning? <https://www.valamis.com/hub/collaborative-learning>

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Wijnia, L., Kunst, E. M., van Woerkom, M., & Poell, R. F. (2016). Team learning and its association with the implementation of competence-based education. *Teaching and Teacher Education*, 56, 115–126. <https://doi.org/10.1016/j.tate.2016.02.006>.

Affiliations and Corresponding Information

May-Annjoy D. Agpuon

Waukegan High School – Illinois, USA

 mayannjoyagpuon@gmail.com