



Mathematics Teachers' and Students' Learning Evaluation for National Learning Camp: Basis for Supplementary YouTube Video Lessons

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Abstract: The National Learning Camp (NLC) in the Philippines aims to bridge the learning gaps created by the COVID-19 epidemic. Therefore, this study evaluated the NLC based on the perspectives of the mathematics teachers and students who participated in the camp. An explanatory sequential design was employed to gather rich data. An evaluation form and interview guide questions were used to collect data subjected to content validation and pilot testing. The findings reveal that mathematics teachers and students evaluated the NLC effectively in learning activities, materials, support, and outcomes. However, mathematics teachers experienced challenges like errors in the printed materials, hard-to-contextualize lessons, broad topics, time-consuming preparation of instructional materials, and inappropriate learning content. Similarly, students experienced challenges such as unclear printed materials, too many lessons that needed to be covered, too much content, and challenging lessons. As an output, teacher-made supplementary YouTube video lessons are created based on the students' suggestions to help those who participate in NLC for grade 7

Keywords: Evaluation; Learning Camp; Mathematics; Video Lessons

DOI: <https://doi.org/10.31756/jrsmte.814>

Introduction

The Programme for International Student Assessment (PISA) 2022 reveals that Philippine students remain least competent in reading, mathematics, and science (Chi, 2023). The nation's performance in PISA 2018 did not significantly improve, according to the most current PISA 2022 test scores. The Philippines' education system must initiate a recovery program because of the poor student assessment performance observed in recent years. The Philippine government has implemented several educational programs, initiatives, and policies to close the gap and improve education quality. One of the initiatives is the development of the National Learning Camp in 2023 (Maguate et al., 2024).

The Philippine Department of Education (DepEd) is committed to ending the learning gaps that arise from the COVID-19 pandemic and helping every learner attain the learning standards (DepEd Order No. 014, s. 2023). Also, as stipulated in the DepEd MATATAG: Bansang Makabata, Batang Makabansa agenda, the learning recovery program is needed to address the learning loss (David et al., 2024). Hence, the National Learning Camp (NLC) is implemented starting the school year 2022-2023. The NLC is a nationwide voluntary recovery program offered by the end of the school year. It aims to gain better learning outcomes (Maguate et al., 2024) and upgrade the teachers' teaching

competencies (DepEd Order No. 014, s. 2023). This effort prioritizes student engagement and well-being, inclusive education, and a pleasant environment where teachers succeed, and learners thrive.

However, the effectiveness of NLC is measured by the test scores of the student participants via online examination. Hence, it does not consider the evaluation of the teacher and student participants or their voices, particularly in mathematics. Therefore, this study addresses the need to evaluate the NCL based on the perspectives of the mathematics teacher and student participants, which served as the basis for supplementary video lesson materials. Students' evaluation is essential since they are the receivers of the curriculum innovation, while the teachers are the implementers. Their evaluations inform the DepEd community of the worthiness and lapses in NLC implementation.

The study's findings help the Schools Division Office (SDO) San Pedro mathematics teachers by utilizing teacher-made supplementary YouTube video lessons aligned with the content of the learning materials from NLC. Insights produced by this study may enlighten the minds of the DepEd officials on how to make NLC more productive and relevant to address the learning gap, particularly in mathematics. Hence, the evaluation results served as literature for future studies refining the NLC implementation. Also, it inspires other researchers to conduct studies on NLC evaluation using various perspectives.

Literature Review

The NLC is a voluntary initiative to enhance learning outcomes and support teachers' teaching abilities (Maguate et al., 2024). This voluntary program begins its gradual adoption with Grades 7 and 8 for the school year 2022-2023, with a specific emphasis on English, Science, and Mathematics (DepEd Order No. 014, s. 2023). The first NLC was conducted from July 24 to August 25, 2023, and was designed to benefit K to 12 students in public elementary and secondary schools. Three days a week are intended for teacher-student interaction, and two days are intended for teachers to share their knowledge and experiences through Learning Action Cell (LAC) meetings.

The primary objective of the NLC is to cultivate a camp-like ambiance by incorporating enjoyable and captivating activities that promote student interests, socio-emotional aptitude, personal advancement, and character enhancement. The NLC is available at the end-of-school-year vacation to enhance learning and establish a basis for future progress in the following school year (DepEd Order No. 014, s. 2023). However, students can be assigned to one of three camps: Intervention Camp, Consolidation Camp, or Enhancement Camp, based on their learning needs (David et al., 2024).

Student participants may be assigned to these camps according to their performance in pre-assessments or their academic achievements. Each class in the camps accommodates a maximum of 35 learners. The duration and activities of each camp differ. Participants who meet the criteria of the camp are granted a certificate of completion, and teachers engaged in the NLC receive a certificate of recognition and service credits. Subsequently, the NLC undergoes expansion to encompass more grade levels and learning domains for the succeeding school year (DepEd Order No.

014, s. 2023). The DepEd intends to enforce the NLC across all grade levels and subjects in the upcoming academic years.

The DepEd urges private schools and higher education institutions to adopt the NLC (DepEd Order No. 014, s. 2023). The program remains in existence until a policy for its repeal is issued. The said camp is divided into three categories. The consolidation camp aims to offer additional opportunities for students to reinforce and apply the competencies they have previously learned. The program offers opportunities to recognize connections between concepts and skills from various grade-level competencies. The enhancement camp enhances the learning experience for advanced students by offering a more extensive and intricate understanding of the competencies in the learning area.

According to DepEd, the purpose of the intervention camp is to assist students with significant learning needs who have not yet mastered basic abilities in Mathematics and English. The first implementation started last school year, 2022-2023, during the end-of-school-year break for Grades 7 and 8. The implementation shall be expanded for the succeeding school years. However, Grades 1 to 3 will have a Reading and Mathematics Program, while the rest of the grade levels shall conduct remedial classes during summer break (DepEd Order No. 014, s. 2023).

Learning camp served as the primary educational environment for fostering the acquisition of recreational abilities, cultivating a readiness to embrace novel experiences, nurturing self-reliance, and cultivating a sense of gratitude for the present moment (Richmond et al., 2019). Learning camp experiences significantly contribute to developing abilities like independence, perseverance, and responsibility (Olsen et al., 2018). Learning camp gives the students experiences to improve social skills and competencies.

Various factors inform the mathematics teacher's and students' evaluations in the learning camp. Instructional support and activities increase the teachers' confidence in delivering mathematics lessons to diverse students (Christian et al., 2021). However, Demirtas (2017) suggested the effectiveness of the learning activities and materials as parts of the evaluation in summer learning camps. Also, Aljai (2018) suggested that the summer learning camp must be evaluated based on the student's achievement in mathematics as a manifestation of instructional strategies' effectiveness.

Most summer camp research remains relatively narrow in scope (Sibthorp et al., 2020). Many include only one camp (e.g., Grier, 2018; Kulegel & Topsakal, 2020; Roberts et al., 2019). Others rely on data obtained immediately following the camp program or information from invested camp graduates. More empirical data is needed to show that summer learning camp attendance has an ongoing impact and value that extends far beyond the experience (Richmond et al., 2019). However, this study adds to the scarce literature on the importance of summer learning camps by evaluating the national learning camp based on the perspectives of mathematics teachers and students who participated after six months to avoid bias toward the camp. Earlier studies on the effects of camp experiences suggest that learning at camp is potentially different and long-lasting into young adulthood (Sibthorp et al., 2020).

More studies need to be conducted that examine more significant groups of people for an extended period after they have participated in a camp (Richmond et al., 2019). Also, further empirical evidence is required to support the notion that summer camp participation provides value and long-term effects that extend well beyond the immediate experience. This would contribute to the current literature on camp outcomes (Whittington & Garst, 2018; Wilson & Sibthorp, 2018). Evaluating the learning camp after several months of participation gives a precise and better evaluation.

Theoretical and Conceptual Framework

The study leans on Kirkpatrick's four-level model of learning evaluation (1950, as cited in Nouraey et al., 2020). Participants' reactions to the program, learning of the participants, participants' behavior, and results are the levels of the said model (Kirkpatrick & Kirkpatrick, 2006; Hamemoradi et al., 2014). The study contextualizes the learning evaluation into learning activities, materials, support, and outcomes based on the perceptions of the national learning camp's student and mathematics teacher participants. Students are chosen because they are the most vital source of information for program evaluation, while teachers have a significant role in program implementation (Nouraey et al., 2020).

The learning activities provide collaboration among the students, allowing them to express creativity and demonstrate understanding in various forms (National Council for Teacher Education, 2017). The activities must be varied and engaging and help the students to understand mathematical concepts (CAST, 2018). Hence, the activities must provide opportunities for the students to express creatively their mathematical understanding by connecting mathematical concepts to real-life applications (National Council of Teachers of Mathematics, 2018). Therefore, the summer camp must engage the students in fun enrichment activities and offer full-day learning options (Pitcock, 2018).

On the other hand, learning materials must be aligned with the objectives and activities of the learning camp and be available in various formats (National Council for Teacher Education, 2017). They must possess open-ended questions, various learning activities, and challenging tasks that cater to various learning preferences (CAST, 2018). The learning materials must be easy to understand and clear and connect mathematics in various disciplines (National Council of Teachers of Mathematics, 2018). Hence, these must support real-life applications of math concepts relevant to students' lives (Boaler et al., 2021).

Similarly, learning support also has an impact on student motivation to engage in mathematics learning (Özkal, 2018) and math achievement (Yıldırım & Yıldırım, 2019). Grier (2018) enumerated the learning support obtained by the students in the summer math academy program, such as support for positive feelings and love for learning, encouragement to strive hard to develop problem-solving skills, support from the teachers to develop mathematical skills, and learning opportunities even at home. Teachers must be capable of providing learning support to diverse students and support their learning needs by providing opportunities (Golec & Kucharczyk, 2017).

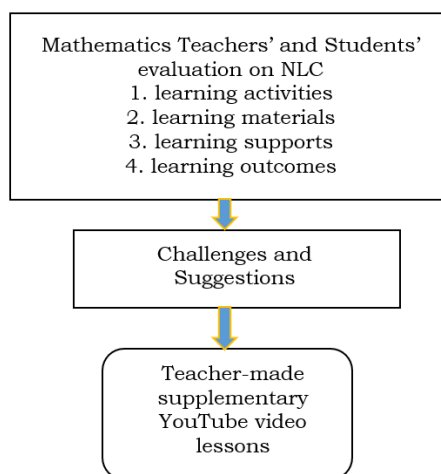
On the one hand, the consequences of teachers' practices on learning outcomes are likely to be lower in underdeveloped nations (Santibanez & Fagioli, 2016). The student learning outcomes can be studied in terms of affective, psychomotor, and cognitive aspects (Supena et al., 2021). National Council for Teacher Education (2017) argued that the mathematics camp activities must build students' problem-solving skills and critical thinking, continue learning and exploring mathematics after the camp, develop collaboration and communication skills with peers and teachers, and improve leadership and social skills. However, Golec and Kucharczyk (2017) claimed that math camps must improve students' confidence in dealing with mathematical problems independently.

Figure 1 below shows the teachers' and students' evaluations of the NLC in terms of learning activities, materials, support, and outcomes considered, including the students' experiences with challenges and suggestions that served as the basis for creating teacher-made supplementary YouTube video lessons. Students' suggestions to improve the NLC implementation in mathematics are elicited, which served as the basis of the study's output. The study strongly believes that a better solution must come from the students who have experienced learning challenges.

David et al. (2024) found that teachers experienced challenges during NLC, such as issues with the appropriateness of content and application, difficulties in faculty collaboration, and delivery of learning materials. However, they found that NLC improves students' critical thinking skills, enhances their understanding, motivates them to learn more and be passionate about, and significantly develops students' collaboration, communication, and teamwork. Meanwhile, Maguate et al. (2024) found that NLC efficiently improves students' literacy and numeracy levels based on the Philippine Informal Reading Inventory (Phil-IRI) results and enhanced numeracy test for grade 7.

Figure 1

Conceptual Paradigm



On the other hand, students use YouTube to enhance their learning and educational endeavors and interact with others (Balakrishnan, 2016). Students like watching movies on YouTube because they can watch the teacher demonstrate

the material (Insorio & Macandog, 2022). Students often ask their teachers to give concise and clear explanations and more instances in videos. Integrating YouTube videos into the classroom can increase students' intellectual flexibility while motivating them to work more and learn more (Caratiquit, 2022). Therefore, YouTube is the best platform for sharing educational videos.

Video lessons help struggling students master the curriculum and promote student-teacher engagement (Nabayra, 2023). Hence, students respond positively to mathematical concepts illustrated in nature when teachers incorporate videos into the lessons (Nabayra, 2020). Therefore, video lessons via an accessible platform like YouTube may help students to do self-paced learning anytime and anywhere as long as a device is connected to the internet.

Research Questions

This study aims to evaluate the DepEd national learning camp in the Division of San Pedro City by the mathematics teachers and students served as the basis for the teacher-made supplementary YouTube video lessons.

It specifically tried to answer the following questions.

1. What is the learning evaluation of the mathematics students and teachers on the national learning camp for mathematics in terms of activities, materials, supports, and outcomes?
2. Is there a significant difference in the learning evaluation of the students and teachers on the national learning camp when they are classified based on their school?
3. What learning challenges do mathematics teachers and students encounter during national learning camp?
4. What are the students' suggestions for improving the national learning camp implementation in mathematics?
5. Based on the findings, what are the contents of teacher-made supplementary YouTube video lessons that can be developed?

Methods

Research Design

The study used an explanatory sequential mixed-methods research design, encompassing quantitative and qualitative phases, to gather comprehensive and detailed data. The data are collected quantitatively, and other data are collected qualitatively to support the quantitative findings (Creswell & Plano-Clark, 2017). Most previous studies about learning camp evaluation used qualitative (David et al., 2024) or quasi-experimental approaches (Maguate et al., 2024), but not mixed methods.

The first stage is a descriptive evaluative that evaluates the NLC based on the mathematics teachers' and students' evaluation of learning activities, materials, support, and outcomes. The second phase entailed a descriptive phenomenology study aimed at elucidating the diverse lived experiences of the participants in NLC. This included documenting the hurdles encountered, learning experiences, and required technical support. Phenomenology is the examination of a phenomenon, encompassing any aspect as a human being subjectively perceives it. It focuses on the subjective nature of participant experiences (Sundler et al., 2019). This information was used to develop the teacher-made supplementary YouTube video lessons for the NLC implementation to address the learning gap.

Participants of the Study

For phase 1, convenience sampling was used to collect data from the 45 teachers and 280 students from six secondary schools who participated in the first implementation of NLC in the SDO San Pedro City for the end-of-school-year 2022-2023. The students aged from 12 to 17 years old were from grades 7 and 8, while the teachers aged from 26 – 52 years old were teaching grades 7 to 11. As shown in Table 1, one hundred thirty-eight male students and one hundred forty-two female students participated in the survey. However, twenty-one male teachers and twenty-four female teachers participated in the survey.

Table 1

Distribution of the Respondents

School	Students			Teachers		
	Male	Female	Total	Male	Female	Total
Pacita Complex National High School	13	18	31	2	3	5
San Pedro Relocation Center National High School	24	30	54	4	5	9
Southville 3 A National High School	26	24	50	4	3	7
Doña Pilar M. Alberto Integrated National High School	26	25	51	4	4	8
Sampaguita Village National High School	28	23	51	4	5	9
Cuyab Integrated National High School	21	22	43	3	4	7
Total	138	142	280	21	24	45

For phase 2, the study used purposive sampling to determine the target participants based on the criteria of 20 teachers and 20 students who participated in the NLC and were willing to participate in the interview. The teacher participants aged 30 to 50 have master's degrees, while the students aged 12 to 15 years old were from grades 7 and 8. The purposive sampling is established upon the criteria and concerns of the researcher (Syahrial et al., 2022).

Instrumentation

The study used a survey questionnaire and interview guide as data collection tools adapted from the work of Golec and Kucharczyk (2017), Grier (2018), and Richmond et al. (2019). Modifications were made to make the questionnaire content appropriate to the study's context. However, content validation was done by the education program supervisor, public school supervisor, senior education program specialist, school head, and master teacher by critically examining each item, and their suggestions were incorporated honestly. Hence, pilot-testing of the questionnaire was conducted for 30 non-respondents, and a pilot interview was conducted for 10 participants in one school with the participants of the national learning camp.

Table 2 depicts the results of content validation from a group of experts using the three-point scale where 1 means not suitable, 2 means need revision, and 3 means suitable. Five experts rated the questionnaire using the checklist and descriptive statistics such as mean and standard deviation were computed. The table reveals that the questionnaires' format and design, content, clarity, and usefulness were suitable for collecting data for students and teachers. The content validity was established before data collection.

Table 2

Results of Content Validation from a Group of Experts

Variable	Student questionnaire			Teacher questionnaire		
	M	SD	Interpretation	M	SD	Interpretation
Format and Design	2.90	.10	Suitable	2.85	.15	Suitable
Content	2.80	.45	Suitable	2.90	.10	Suitable
Clarity	2.92	.18	Suitable	2.93	.17	Suitable
Usefulness	2.84	.36	Suitable	2.89	.20	Suitable

Table 3 shows the questionnaire's reliability indices using Cronbach's alpha. It can be gleaned from the table that the questionnaire was reliable, having a good or excellent reliability index using Cronbach's alpha. Both questionnaires for students and teachers obtained acceptable values of reliability. The indices ranged from good to excellent, which shows the strong consistency of the responses. The questionnaire's final version has seven-item indicators per variable that reached the acceptable values of Cronbach's alpha. The student questionnaire has the same number of indicators as the teacher questionnaire, but they have different content.

Table 3

Reliability Analysis using Cronbach's alpha

Variable	Student questionnaire			Teacher questionnaire		
	n	α	Interpretation	n	α	Interpretation
Learning activities	7	.871	Good	7	.958	Excellent
Learning materials	7	.900	Excellent	7	.971	Excellent
Learning support	7	.918	Excellent	7	.937	Excellent
Learning outcomes	7	.881	Good	7	.951	Excellent

Data Collection Methods

After authorization had been obtained from the Superintendent of the Schools Division Office of San Pedro City, an additional letter of request was dispatched to the school head to obtain consent for administering the evaluation form. A formal letter requesting the participants' consent was enclosed with the hard copy and distributed to the mathematics teachers and students. In the first and final sections of the questionnaire, the researcher's contact information

(cellphone number and email address) was provided in case any inquiries or clarifications were required. The demographic profiles, evaluation, and challenges of the respondents are extracted from the data and used to inform the kind of teacher-made supplementary YouTube video lessons. Following this, the twenty mathematics teachers and twenty students who participated in the NLC engaged in semi-structured interviews in which they provided insights into the learning difficulties they face, experiences, and learning needs in mathematics. Moreover, the two education program supervisors validated the teacher-made supplementary video lessons as the study's output using the evaluation checklist adapted from Nagy (2018).

Ethical Considerations

During any research process, it was imperative to establish ethical considerations, including protecting participant rights, adherence to authority, preserving data confidentiality and participant identities, proper data storage, and responsible data release (Drolet et al., 2023). Before the implementation phase, a formal letter is acquired to get authorization from the school division superintendent, school heads, teachers, and student participants, serving as evidence. Participation is optional, without any expectation of receiving preferential treatment. Participants can decline or discontinue their involvement at any given moment. Their identities remain undisclosed to any party, and the data collected from them are securely maintained as confidential for two years on the researcher's personal computer. Strict adherence to privacy and confidentiality was maintained at all times.

Pseudonyms were employed as substitutes for participants' names, and the study exclusively presented condensed data. In adherence to ethical principles, the researcher obtained consent from the authors of the modified questionnaire by email. Furthermore, the data were shared with a broader audience through faculty meetings, research conferences, division presentations, and online publications. The participants felt free to direct any inquiries regarding the study to the researchers, who could assist at any time.

Data Analysis

Data was cleaned to eliminate outliers, rectify errors, and mitigate bias (Aziz et al., 2019). The quantitative data analysis was done using Jamovi version 2.4.14. This software allowed for the calculation of frequency counts, medians, and interquartile ranges used for descriptive analysis (Darmaji et al., 2022; Kholilah et al., 2020). However, the Kruskal-Wallis H test and Mann-Whitney U test were employed to ascertain the presence of significant differences (Zhu et al., 2019) in teachers' and students' assessments, considering their schools.

The table below shows the 6-point Likert scale used to interpret the data. The scale was used to measure the student and teacher evaluation of NLC in terms of learning activities, materials, support, and outcomes.

Table 4*Likert Scale Used to Show the Evaluation of Students and Teachers*

Scale	Description	Evaluation level	Symbol
1	Very Strongly Disagree	Not Effective	NE
2	Strongly Disagree	Less Effective	LE
3	Disagree	Slightly Effective	SLE
4	Agree	Somewhat Effective	SE
5	Strongly Agree	Effective	E
6	Very Strongly Agree	Highly Effective	HE

Qualitative data analysis was analyzed following Braun and Clarke's method (2006) for thematic analysis. The thematic analysis utilized a descriptive approach focusing on the lived experience, namely perceptions of the environment (Sundler et al., 2019). Nevertheless, to establish data validation, the transcript and data analysis were returned to the participants for their permission and to verify the accuracy of the data as a form of member checking. Member checking enabled the researcher to verify the accuracy of participant voices by allowing participants to confirm or refute the validity and interpretation of the data (Candela, 2019).

Results

Table 5 presents the evaluation of the mathematics students at the national learning camp in terms of learning activities. Respondents perceived that the learning activities were engaging and changed occasionally, helping them understand math concepts. The activities helped them to connect math concepts with real-life applications. They allowed them to be creative and collaborate with others. Also, students felt motivated because the activities were suited to their skills. Overall, students evaluated the learning activities of NLC as effective ($\bar{x}=5$). Therefore, the NLC learning activities bring learning effectively as perceived by the students.

Table 6 shows the evaluation of the mathematics students at the national learning camp in terms of learning materials. The learning materials had appealing and engaging content with diagrams, illustrations, and examples that were easy to understand. Also, the materials and activities were aligned with the objectives of the NLC and the suggestions of the National Council for Teacher Education (2017). The material content had subject integration and encouraged critical thinking and problem-solving skills that promote the exploration of math concepts in real-life situations. In addition, it had self-reflection and evaluation to promote active engagement. Overall, students evaluated the learning materials of NLC as effective ($\bar{x}=5$).

Table 5

Evaluation of the mathematics students at the national learning camp in terms of learning activities

Statement	\bar{x}	IQR	VI
1. The learning activities were varied and engaging.	5	2	Effective
2. The activities helped me understand mathematical concepts in a new way.	5	2	Effective
3. I felt challenged and motivated by the activities in the national learning camp.	5	2	Effective
4. The activities were appropriate for my skills.	4	1	Somewhat Effective
5. I had opportunities to collaborate with other students on the activities.	5	2	Effective
6. I had opportunities to express my creativity through the activities.	5	2	Effective
7. The activities helped me connect mathematics to real-life applications.	5	2	Effective
Overall	5	2	Effective

Legend: \bar{x} = median IQR = Interquartile range VI = Verbal interpretation**Table 6**

Evaluation of the Mathematics Students at the National Learning Camp in Terms of Learning Materials

Statement	\bar{x}	IQR	VI
1. The learning materials were clear and easy to understand.	5	2	Effective
2. The materials were visually appealing and engaging, effectively using diagrams, illustrations, and other multimedia elements.	5	2	Effective
3. The materials were directly aligned with the learning objectives of the camp and the activities involved.	5	2	Effective
4. The materials connected mathematics to different subjects and disciplines, demonstrating its interdisciplinary nature.	5	2	Effective
5. The materials encouraged critical thinking and problem-solving by presenting challenging tasks and open-ended questions.	5	2	Effective
6. The materials promoted active engagement and exploration of mathematical concepts.	5	2	Effective
7. The materials provided opportunities for self-reflection and evaluation of learning progress.	5	2	Effective
Overall	5	2	Effective

Legend: \bar{x} = median IQR = Interquartile range VI = Verbal interpretation

Table 7 shows the evaluation of the mathematics students at the national learning camp in terms of learning support. The NLC provided learning opportunities for the students to learn mathematics positively. It created a good feeling and love for learning. Also, it supported the students' mathematical learning abilities and problem-solving skills in school or at home. Students receive learning support from their teachers and encouragement to strive to solve problems by providing learning opportunities. Overall, the learning support was evaluated as effective ($\bar{x}=5$) by the students.

Table 7

Evaluation of the Mathematics Students at the National Learning Camp in Terms of Learning Support

Statement	\bar{x}	IQR	VI
1. The national learning camp supported my positive feelings toward mathematics learning.	5	2	Effective
2. The national learning camp created a love for learning mathematics.	5	2	Effective
3. The national learning camp provided opportunities for me to succeed in mathematics.	5	2	Effective
4. The national learning camp encouraged me to strive hard while solving problems.	5	2	Effective
5. The national learning camp supported the development of my mathematical abilities and problem-solving skills.	5	2	Effective
6. I received learning support from the teachers and school administrators.	5	2	Effective
7. The learning support was given to every student, even at home.	5	2	Effective
Overall	5	2	Effective

Legend: \bar{x} = median IQR = Interquartile range VI = Verbal interpretation

Table 8 depicts the evaluation of the mathematics students at the national learning camp in terms of learning outcomes. From the table, NLC improved the students' emotional and social aspects. Students built self-confidence to deal with problems and collaborate with others with empathy. Also, their leadership skills were developed through collaboration and forming good relations. Hence, they became motivated to explore mathematics and improve their mathematical understanding. Overall, students evaluated the NLC learning outcomes as effective ($\bar{x}=5$).

Table 9 reveals the evaluation of the mathematics teachers at the national learning camp in terms of learning activities. The NLC learning activities, as perceived by the mathematics teachers, were adequately planned, aligned with the objectives, and appropriate for the students. Also, learning activities were differentiated and could easily be managed by the teachers. Moreover, learning activities encouraged the students to participate and allowed feedback on the student's work. Overall, teachers rated the learning activities as effective ($\bar{x}=5$).

Table 8*Evaluation of the Mathematics Students at the National Learning Camp in Terms of Learning Outcomes*

Statement	\bar{x}	IQR	VI
1. The national learning camp improved my leadership skills.	5	2	Effective
2. The national learning camp taught me how to empathize with others.	4	2	Somewhat Effective
3. The national learning camp increased my self-confidence to deal with mathematical problems.	5	2	Effective
4. The national learning camp increased my social skills and formed good relationships with others.	5	2	Effective
5. The national learning camp increased my ability to collaborate with others.	5	2	Effective
6. My understanding of mathematical concepts improved significantly during the national learning camp.	5	2	Effective
7. After the national learning camp, I am more motivated to continue learning and exploring mathematics.	5	2	Effective
Overall	5	2	Effective

Legend: \bar{x} = median IQR = Interquartile range VI = Verbal interpretation**Table 9***Evaluation of the Mathematics Teachers at the National Learning Camp in Terms of Learning Activities*

Statement	\bar{x}	IQR	VI
1. The learning activities were well-planned and aligned with the national learning camp objectives.	5	2	Effective
2. The activities were appropriate for the age and ability levels of the students.	5	2	Effective
3. There was a balance between different types of activities (individual, group, hands-on, etc.).	5	2	Effective
4. The activities were effectively facilitated and managed by the teachers.	6	1	Highly Effective
5. The activities were supportive and encouraging for learning.	5	2	Effective
6. Students were actively engaged and participated in the activities.	5	2	Effective
7. Students received constructive feedback on their work and progress in every activity.	5	2	Effective
Overall	5	2	Effective

Legend: \bar{x} = median IQR = Interquartile range VI = Verbal interpretation

Table 10 presents the evaluation of the mathematics teachers at the national learning camp in terms of learning materials. Mathematics teachers perceived the learning materials were created correctly, catering to various students'

skills based on the NLC objectives. The learning materials allowed the students to integrate mathematics with other disciplines using various learning tools and resources to differentiate learning. Also, learning materials were easy to use, with clear instructions, allowing constructive feedback and student support. Overall, mathematics teachers evaluated the NLC learning materials as effective ($\bar{x}=5$).

Table 10

Evaluation of the Mathematics Teachers at the National Learning Camp in Terms of Learning Materials

Statement	\bar{x}	IQR	VI
1. The materials were carefully chosen and aligned with the national learning camp's objectives and student needs.	4	2	Somewhat Effective
2. The materials provided sufficient depth and complexity for different student skills.	4	1	Somewhat Effective
3. The materials were effectively integrated into the different learning activities at the camp.	5	2	Effective
4. The materials offered various tools and resources to support diverse learning styles and preferences.	4	1	Somewhat Effective
5. The materials were easy to implement and had clear instructions.	5	2	Effective
6. The materials helped me provide constructive feedback and support to students during activities.	5	1	Effective
7. The materials were helpful and engaging in the students' learning process.	5	2	Effective
Overall	5	2	Effective

Legend: \bar{x} = median IQR = Interquartile range VI = Verbal interpretation

Table 11 presents the mathematics teachers' evaluation of learning support at the national learning camp. The NLC allowed mathematics teachers to become capable of providing learning support for the students and opportunities to collaborate with others. Also, NLC supported the students' development of mathematical skills by providing learning opportunities to explore. In addition, NLC created a conducive learning environment by supporting the students' learning needs. Overall, mathematics teachers evaluated the NLC learning support as effective ($\bar{x}=5$).

Table 12 depicts the mathematics teachers' evaluation at the national learning camp regarding learning outcomes. Mathematics teachers perceived that the NLC improved the students' leadership skills through collaborative work, and boosted self-confidence in dealing with mathematics problems. Similarly, it promoted socialization among the students. Also, NLC motivates the students to learn more about mathematical concepts and principles. Hence, the mathematical learning gap was addressed, and students' critical thinking and problem-solving skills were developed, supporting the principle of the National Council for Teacher Education (2017). Overall, the mathematics teachers evaluated the NLC learning outcomes as effective ($\bar{x}=5$).

Table 11*Evaluation of the Mathematics Teachers at the National Learning Camp in Terms of Learning Support*

Statement	\bar{x}	IQR	VI
1. I am prepared and capable of providing learning support to diverse students.	5	1	Effective
2. The national learning camp provides opportunities for collaboration among teachers for adequate learning support.	5	2	Effective
3. The national learning camp supported the learning needs of the students.	5	2	Effective
4. The national learning camp provided mathematics learning opportunities for the students.	5	2	Effective
5. The national learning camp supported a conducive learning environment for the students.	5	2	Effective
6. The national learning camp supported the development of students' mathematical abilities and problem-solving skills.	5	2	Effective
7. The student's support was always provided to every student by the teachers and school administrators.	5	2	Effective
Overall	5	2	Effective

Legend: \bar{x} = median IQR = Interquartile range VI = Verbal interpretation**Table 12***Evaluation of the Mathematics Teachers at the National Learning Camp in Terms of Learning Outcomes*

Statement	\bar{x}	IQR	VI
1. The national learning camp improved the students' leadership skills	5	0	Effective
2. The national learning camp increased the students' social skills and collaboration.	5	1	Effective
3. The national learning camp boosted the students' self-confidence in dealing with problem-solving.	5	1	Effective
4. The students became more motivated to learn mathematics concepts and principles.	5	1	Effective
5. The students developed critical thinking and problem-solving skills.	5	1	Effective
6. The students learned more mathematical concepts and principles.	5	2	Effective
7. The mathematical learning gap was addressed during the national learning camp.	5	1	Effective
Overall	5	1	Effective

Legend: \bar{x} = median IQR = Interquartile range VI = Verbal interpretation

Table 13 reveals the Kruskal-Wallis H Test for significant differences in the evaluation of the students at the national learning camp when they are classified based on the school. The p-value of .000 ($df=5$) strongly signifies the existence

of statistical differences in the evaluation of the students at the national learning camp in terms of learning activities, materials, support, and outcomes. It means that students from different schools have different evaluations.

Table 13

Kruskal-Wallis H Test for Significant Differences in the Evaluation of the Students in the National Learning Camp When They Are Classified Based on School

Variable	df	χ^2	p-value	Interpretation
Learning activities	5	36.6	.000	Significant
Learning materials	5	36.8	.000	Significant
Learning support	5	38.0	.000	Significant
Learning outcomes	5	49.3	.000	Significant

Table 14 summarizes the evaluation of students in national learning camps per school. Southville 3A National High School students evaluated the learning support as highly effective, while the other variables were effective. However, Sampaguita Village National High School students evaluated the NLC variables as slightly effective only. Similarly, Cuyab Integrated National High School students evaluated the NLC variables as slightly effective except for effective learning support. The students from Doña Pilar M. Alberto Integrated National High School, Pacita Complex National High School, and San Pedro Relocation Center National High School evaluated the NLC variables as effective.

Table 14

Summary of the Evaluation of Students in National Learning Camp per School

School	National Learning Camp							
	Learning activities	VI	Learning materials	VI	Learning support	VI	Learning outcomes	VI
Pacita Complex NHS	5	E	5	E	5	E	5	E
SPRCNHS	5	E	5	E	5	E	5	E
Southville 3 A NHS	5	E	4.5	E	6	HE	5	E
Doña Pilar M. Alberto INHS	5	E	5	E	4.5	E	5	E
Sampaguita Village NHS	4	SE	4	SE	4	SE	4	SE
Cuyab Integrated NHS	4	SE	4	SE	5	E	4	SE

Legend: VI = Verbal Interpretation

Table 15 presents the Kruskal-Wallis H Test for significant differences in the teachers' evaluation of the national learning camp when the teachers are classified based on the school. There is a significant difference ($p < .05$, $df=5$) in

the teacher's evaluation of the national learning camp in terms of learning materials, support, and outcomes. However, a significant difference was not established in the evaluation of the teachers in the national learning camp when it comes to learning activities.

Table 15

Kruskal-Wallis H Test for Significant Differences in the Evaluation of the Mathematics Teachers in the National Learning Camp When They Are Classified Based on School

Variable	df	χ^2	p-value	Interpretation
Learning activities	5	1.87	.866	Not Significant
Learning materials	5	13.41	.020	Significant
Learning support	5	11.75	.038	Significant
Learning outcomes	5	12.39	.030	Significant

Table 16 summarizes the evaluation of teachers in national learning camps per school. It can be gleaned from the table that mathematics teachers from Pacita Complex National High School evaluated the NLC as highly effective. In contrast, Cuyab National High School mathematics teachers evaluated the NLC as effective in learning activities but less effective in learning materials and outcomes. On the other hand, mathematics teachers from San Pedro Relocation Center National High School (SPRCNHS) evaluated the NLC as highly effective in learning activities similar to Doña Pilar M. Alberto Integrated National High School. On the contrary, Southville 3A National High School mathematics teachers evaluated the NLC as somewhat effective in learning activities but effective in learning materials, support, and outcomes.

Table 16

Summary of the Evaluation of Mathematics Teachers in National Learning Camp per School

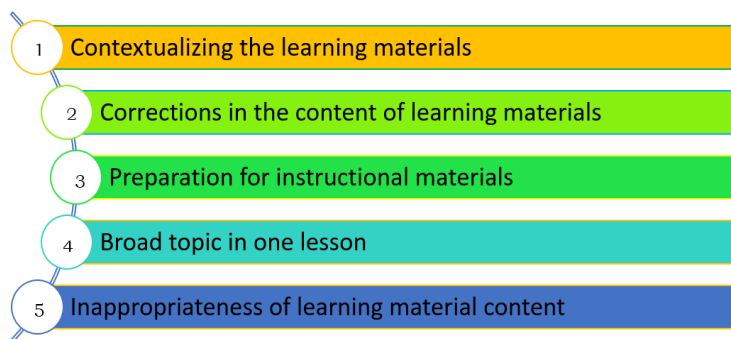
School	National Learning Camp							
	Learning activities	VI	Learning materials	VI	Learning support	VI	Learning outcomes	VI
Pacita Complex NHS	6	HE	6	HE	6	HE	6	HE
SPRCNHS	6	HE	4	SE	4	SE	4	SE
Southville 3 A NHS	4	SE	5	E	5	E	5	E
Doña Pilar M. Alberto INHS	6	HE	5	E	5	E	5	E
Sampaguita Village NHS	5	E	5	E	5	E	5	E
Cuyab Integrated NHS	5	E	2	LE	4	SE	2	LE

Legend: VI = Verbal Interpretation

Figure 2 depicts the challenges experienced by mathematics teachers during the national learning camp. Mathematics teachers needed help contextualizing the learning materials' content since the materials were written based on mathematics competencies. In addition, they found the preparation of the instructional materials challenging since they needed to create fun-filled activities in the afternoon based on the student's learning needs. Also, they found corrections in the learning content of learning materials provided by DepEd, particularly in the provided answer keys. They concluded that the learning materials needed to be more appropriate for the student's level of understanding, similar to David et al.'s findings (2024), due to students' learning gap with broad topics in each lesson.

Figure 2

Challenges Experienced by Mathematics Teachers During the National Learning Camp



The findings above are supported by the participants' words taken from the transcripts.

“Challenges in using provided materials in NLC include adapting content to diverse learning styles and relating to the student’s context.” – Teacher 3

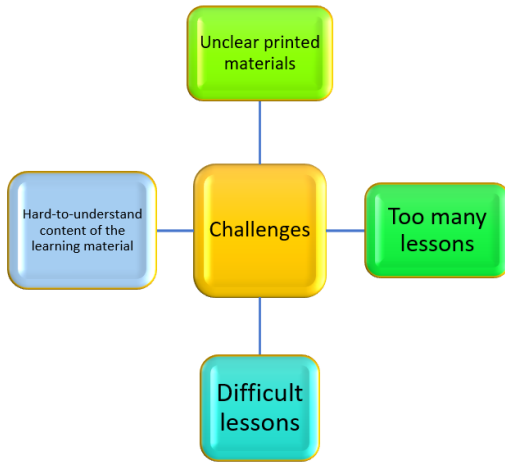
“Most of the topics in the materials are more or somewhat advanced for the student's level of skills.”
– Teacher 12

Figure 3 presents the challenges experienced by students during the national learning camp. Students needed help reading the visually unclear printed learning materials, which contributed to their mathematical misconceptions. Also, they found the learning materials with too many lessons and difficult-to-understand lessons because the content was not appropriate for their understanding level. Students need technical assistance from their teachers to grasp the mathematics concepts and principles written in the learning materials.

Figure 4 presents the students' suggestions to improve the national learning camp implementation in mathematics. Students suggested providing learning materials that are visually clear to read so that they can grasp the mathematics concepts quickly. They also suggested having more fun-filled activities to motivate them to socialize and share ideas with others. In addition, they requested that teacher-made video lessons be accessible anytime and anywhere as additional learning materials. When it comes to teachers, they request that they become more approachable, especially if they have queries regarding the lessons.

Figure 3

Challenges Experienced by Students During the National Learning Camp



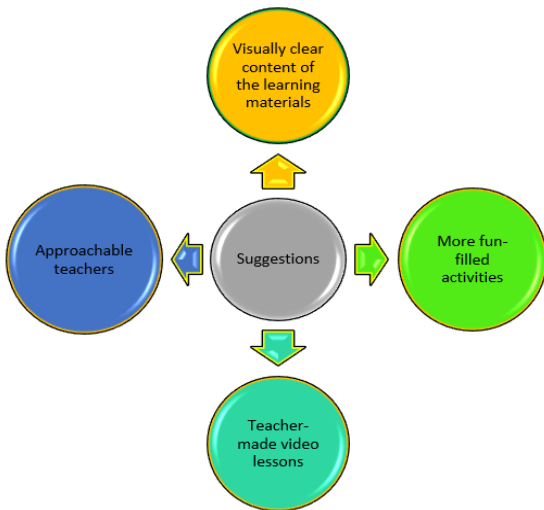
The excerpts from the interview transcripts support the findings in Figure 3.

“The modules are not highly visible, and the activities are challenging to solve. – Student 1

“Too many lessons to cover and had to understand the lesson content in mathematics.” - Student 7

Figure 4

Students’ Suggestions to Improve the National Learning Camp Implementation in Mathematics



The students' words supported the findings above, which were taken from the interview.

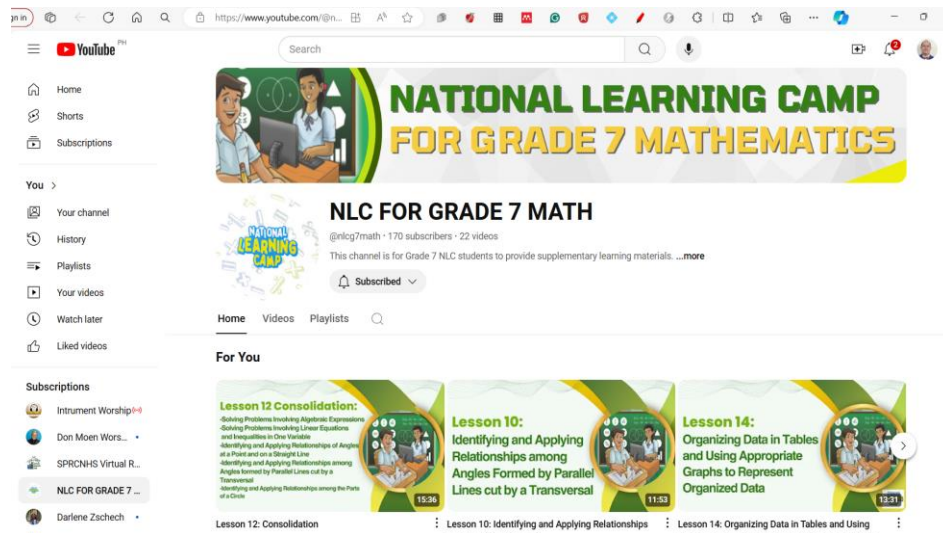
“It is better to have a video lesson, especially for slow learners who can go back to the video even at home and understand the lessons better.’ – Student 1

“Make the modules clear, colorful, and more attractive. Provide lots of fun activities.”- Student 6

Figure 5 shows the study's outcome as supplementary learning materials for grade 7 mathematics. The eighteen teacher-made video lessons were uploaded to the YouTube channel to make it accessible to students attending the NLC for the next school year. The video lessons cover the mathematics lessons found in NLC materials that are aligned with the learning activities provided. The mathematics supervisor validated video lessons to ensure their quality and alignment with NLC objectives. Hence, the said video lessons will be shared with the participants of the NLC for grade 7 regardless of the type of camp attended. However, the owner will not receive any monetization from the students' viewing session because the purpose is educational.

Figure 5

National Learning Camp for Grade 7 Math via YouTube channel



Discussions

This study aimed to evaluate the DepEd national learning camp in terms of learning activities, materials, support, and outcomes by the mathematics teachers and students served as the basis for the teacher-made supplementary YouTube video lessons. Students evaluated the NLC based on learning activities, support, and outcomes as effective. They find the NLC worthy of addressing the student's learning gap through fun, engaging, and collaborative camp-like learning that aligns with CAST's (2018) claim. However, students find the learning materials somewhat effective due to unclear printed parts and inappropriate to their skills due to some hard-to-understand topics. Opposing this, the National Council of Teachers of Mathematics (2018) suggests that learning materials must be clear and understandable. However, NLC develops students' collaboration and teamwork skills parallel to David et al.'s findings (2024). However, when grouped based on school, students have different NLC evaluations that manifest diverse learning experiences.

Students believe that the learning activities are enjoyable and changing, which helped them comprehend the lesson with real-life application parallel to suggestions of the National Council of Teachers of Mathematics (2018) and similar to the findings of Boaler et al. (2021). NLC develops leadership qualities that are enhanced via cooperation and excellent relationships, which supports the findings of David et al. (2024). Moreover, teachers provide students with learning assistance and motivation to seek to solve difficulties by creating learning opportunities in line with Golec and Kucharczyk's findings (2017).

Mathematics teachers find the learning activities effective because they can facilitate and manage them properly aligned with the suggestions of the National Council for Teacher Education (2017). Instructional activities boost the teacher's confidence to deliver mathematics lessons diversely (Christian et al., 2021). However, they rate the learning materials' sufficiency in depth and complexity somewhat effective due to the inappropriateness of some learning content to the student's context. Also, the students' diverse learning styles and preferences must be adequately addressed due to less contextualized learning materials that offer various tools and resources. Hence, mathematics teachers have different evaluations when they are grouped based on the school they taught. It shows that mathematics teachers have various learning experiences in every school.

Challenges arise on the teachers' side, like how to contextualize the lesson, correct some errors in the materials, prepare the instructional materials appropriate to the student's level of understanding, similar to David et al.'s (2024) findings, and digest the broad topic. Similarly, due to their learning gap, students experienced challenges like unclear printed materials, hard-to-understand learning content, and too many difficult lessons. However, they give suggestions to improve the following NLC implementation, such as providing printed materials clearly, more fun and exciting activities with approachable teachers, and video lessons.

Video lessons via YouTube channel are created as the study's output to supplement the students' learning materials. Video lessons help the students do self-paced learning in a flexible but engaging environment that promotes autonomy (Nabayra, 2023). In addition, incorporating video lessons helps the student to learn mathematics concepts (Nabayra, 2020). Since students like watching YouTube videos (Insorio & Macandog, 2022), integrating these in a classroom setting may increase student engagement, leading to better learning. Moreover, video lessons are teacher-made and intended to supplement the learning materials for grade 7 students. The topics are aligned with the NLC content materials, making the video content relevant to the lessons.

The study contributes to Kirkpatrick's four models of learning evaluation, recognizing the value of evaluation from the NLC implementers (teachers) and students based on their reactions (activities), learning of the participants (materials), participants' behavior (support), and results (outcomes). Students are the most crucial source of evaluation, while teachers play a vital role in the camp implementation (Nourayy et al., 2020). Considering the students' and teachers' perspectives in evaluation illuminates the value of NLC in promoting learning in camp-like activities.

Conclusions and Recommendations

Students evaluated the NLC as effective in terms of learning activities, support, and outcomes, but somewhat effective for learning materials. Similarly, mathematics teachers evaluated the NLC as effective. Hence, a significant difference appears when the students are classified by their respective schools. Sampaguita Village National High School students perceived the NLC as effective, similar to the students from Cuyab Integrated National High School, except for learning support. Meanwhile, significant differences exist in learning materials, support, and outcomes when they are grouped based on school. San Pedro Relocation Center National High School mathematics teachers evaluated the NLC as effective in learning materials, support, and outcomes. However, Cuyab Integrated National High School students evaluated the learning materials and outcomes as less effective.

Students experience challenges during the NLC implementation, such as learning materials printed unclearly, too many lessons to cover, learning content being hard to understand, and lessons being difficult. Similarly, teachers experience challenges such as corrections in the learning materials, contextualization of lessons, time-consuming preparation of instructional materials, broad topics, and inappropriate learning content. However, students suggest having more fun-filled activities, learning materials printed clearly, approachable teachers, and teacher-made video lessons. Therefore, the researchers created video lessons aligned with NLC mathematics learning competencies as the product of the study.

To address the challenges and suggestions, school administrators may strengthen the provision of technical assistance to mathematics teachers and students to maximize the learning experience. Also, DepEd officials need to evaluate the learning materials first to ensure their quality and avoid errors in the printed materials. In addition, mathematics teachers need to be more approachable with the students, inculcate more fun-filled activities, and always contextualize the lesson. Similarly, the teacher-made video lesson from Grade 7 students can be utilized by the teachers in NLC implementation to supplement the students' learning in mathematics. On the other hand, the study is limited to evaluating NLC from mathematics teachers' and students' perspectives in one city. Therefore, future researchers may conduct NLC evaluations in English, Science, and Mathematics using the perspectives of teachers, students, school administrators, and supervisors but from grades 7 to 10 based on each type of NLC participated.

Acknowledgments

The researchers are grateful to the following entities for helping them make this basic research possible. These people helped the researchers a lot with ideas and writing terminal reports.

Rogelio F. Opulencia, Schools Division Superintendent, for allowing the researchers to conduct research within the division of San Pedro City.

Reginal G. Grafil, Principal IV of Pacita Complex National High School, and Emma E. Carrillo, Public Schools District Supervisor-Cluster 10, for the technical assistance and support to the researchers.

Jojiemar M. Obligar, Hilarion B. Alcantara, Irma Estela Marie L. Esteban, and Zorayda T. Villanueva for validating the research instruments and video lessons.

Alvin O. Insorio always guides the researchers in decision-making and report writing. Thank you for the technical assistance extended to the researchers. Your research expertise guides the researchers to pursue undertakings despite challenges that arise.

Jade Olive C. Manalo edited the video lessons and assisted the researchers in creating the YouTube channel. Thank you for your support and passion for the technical aspect of helping students and mathematics teachers who participated in the study.

To all participants, your learning needs motivated the researchers to think outside the box and propose solutions to the challenges they encountered. Thank you for your voluntary participation and for sharing your time.

Above all, the Almighty God and Lord Jesus are the source of wisdom, grace, and mercy. Not enough words can express gratitude and wholehearted thanks. Glory and power come from them.

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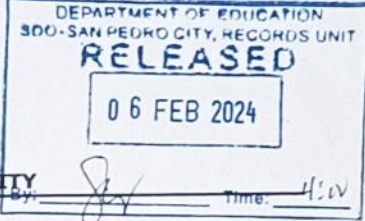
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Appendix



Republic of the Philippines
Department of Education
 REGION IVA - CALABARZON
SCHOOLS DIVISION OFFICE OF SAN PEDRO CITY



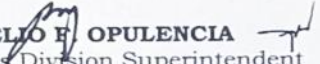
Office of the Schools Division Superintendent

1st Indorsement
 February 05, 2024

Respectfully returned to **Ms. JORELYN E. INSORIO**, researcher from Pacita Complex National High School, the approved request to conduct a division-wide study. Interposing no objection to administer survey questionnaire and gather necessary data to students and mathematics teachers of Junior High Schools in Schools Division Office of San Pedro City. This is for the completion of her research entitled "*Mathematics Teachers' and Students Evaluation for National Learning Camp: Basis for Supplementary YouTube Video Lessons*".




It is expected that adherence to DepEd Order No. 9, s. 2005, time-on-task policy shall be observed ensuring that no disruption of classes will occur during the conduct of the said activity. Furthermore, this Office reiterates the strict adherence to IATF guidelines and safety protocols in interacting with the prospective respondents from the selected school. All the data gathered shall be used solely for the research purposes in compliance with Data Privacy Act 2012.

After the study, submit hard copy and soft copy of the results of findings.



ROGELIO H. OPULENCIA
 OIC- Schools Division Superintendent

SGOD/Research Endorsement
 E2024024/January 30, 2024

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Please Cite: Insorio, J., & Manalo, D. (2024). Mathematics teachers' and students' learning evaluation for national learning camp: Basis for supplementary YouTube video lessons. *Journal of Research in Science, Mathematics and Technology Education*, 8(1), 67-94. DOI: <https://doi.org/10.31756/jrsmte.814>

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Conflict of Interest: There is no conflict of interest.

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Data Availability Statement: The data is available upon the request from the corresponding author.

Ethics Statement: The study was approved by the Philippine Department of Education Schools Division Office of San Pedro City Research Committee.

Author Contributions: The first author was responsible for the writing of the report, data collection, and analysis. However, the second author was responsible for the development of YouTube video lessons.

Received: July 25, 2024 ▪ Accepted: November 19, 2024