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# EFFECTIVENESS OF MAPTV (MATHEMATICS AND ARALING PANLIPUNAN TUTORIAL VIDEOS) IN ENHANCING GRADE 6 PUPILS' MATHEMATICS LEARNING

**Johnie V. Olorvida**
School Principal I
Subay Elementary School
Cardona District, Schools Division of Rizal, Philippines
Email: johnie.olorvida001@deped.gov.ph

**Abstract**

This action research examined the perceived effectiveness of MAPTV (Mathematics and Araling Panlipunan Tutorial Videos) as a supplementary learning resource in Mathematics among Grade 6 pupils of Subay Elementary School during the second quarter of School Year 2025–2026. Using a descriptive-survey design, data were gathered from eighty-six (86) Grade 6 pupils through a researcher-made questionnaire-checklist that described respondents' profile (sex, sibling position, monthly family income, number of children in the family, parents' educational attainment, and parents' occupation) and measured perceived MAPTV effectiveness in three dimensions: understanding mathematical concepts, computational skills, and problem-solving skills. MAPTV was perceived as Much Effective overall, with a composite weighted mean of 3.98. Understanding Mathematical Concepts was rated highest (M = 4.03), followed by Computational Skills (M = 3.98) and Problem-Solving Skills (M = 3.94). One-way analysis of variance (ANOVA) indicated no statistically significant difference in perceived effectiveness across sex, sibling position, monthly family income, number of children in the family, or parents' occupation ($p > .05$), but a significant difference emerged when respondents were grouped by parents' educational attainment ($p < .05$). Pupils' first-quarter Mathematics performance was Very Satisfactory (M = 84.40, SD = 5.32). Correlation analysis further revealed statistically significant positive relationships between perceived MAPTV effectiveness and Mathematics performance across all three dimensions: Understanding Mathematical Concepts ($r = .760$, $p = .002$), Computational Skills ($r = .862$, $p = .043$), and Problem-Solving Skills ($r = .771$, $p = .003$). These findings support the continued use of MAPTV as a supplementary instructional resource for remediation, reinforcement, and enrichment in Grade 6 Mathematics. Because the design is descriptive-correlational, the observed relationships should not be read as evidence that MAPTV alone caused the pupils' academic performance.

**Keywords:** *tutorial videos, MAPTV, Mathematics achievement, action research, supplementary learning resource, Grade 6*

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## Introduction

Education is the process by which knowledge, skills, attitudes, and values are transmitted from one generation to the next, equipping individuals to meet life's challenges. In the Philippines, the shift to the K to 12 Basic Education Program was intended to build a functional basic education system that produces learners equipped with the competencies needed for lifelong learning. Rule II, Section 10.3 of the Implementing Rules and Regulations of Republic Act No. 10533 (the Enhanced Basic Education Act of 2013) encourages the production and development of locally produced teaching and learning materials, with approval devolved to the regional and division education units in accordance with national policies and standards. This provision underlies the rationale for teacher-developed instructional materials, such as the tutorial videos examined in this study, as a legitimate and encouraged response to localized learning needs.

Within this policy environment, teachers are expected to design and utilize learning materials that are responsive to the specific gaps observed in their classrooms. Video-based instruction has become an increasingly common supplementary resource. Pachuri (2019) described YouTube as one of the most widely used video-sharing platforms, noting that it has given rise to an informal "how-to" tutorial culture that many learners now use alongside formal instruction. Robles (2019) similarly reported that teacher-validated video tutorials, developed and rated by subject-matter experts, were found to be highly acceptable, relevant, and usable as instructional support for students working on higher-order problem-solving skills. Vargas (2021), using an experimental design with Senior High School learners, found that groups taught with video lessons performed better on post-tests than groups taught through traditional methods alone, even though no significant difference was observed between groups at pretest.

One of the recurring concerns among Mathematics teachers at Subay Elementary School is how to strengthen pupils' numeracy skills, particularly mastery of the four fundamental operations on fractions — a foundation for later competencies in ratio and proportion, statistics and probability, and introductory algebra. In response, the researcher developed and implemented MAPTV (Mathematics and Araling Panlipunan Tutorial Videos) as a supplementary learning resource for Grade 6 Mathematics, targeting the least-mastered competencies identified through classroom assessment. Pupils' average grade for the first quarter was Very Satisfactory ($M = 84.40$, $SD = 5.32$), which suggested room for continued reinforcement even among generally passing learners.

This action research was undertaken to determine how Grade 6 pupils perceived the effectiveness of MAPTV as a supplementary resource, and whether that perception was meaningfully related to their actual academic performance in Mathematics.

### *Statement of the Problem*

This study aimed to determine the perceived level of effectiveness of MAPTV in enhancing Grade 6 Mathematics learning at Subay Elementary School, Cardona District, Schools Division of Rizal, during School Year 2025–2026. Specifically, it sought to answer the following questions:

1. What is the profile of the respondents in terms of: (a) sex; (b) sibling position; (c) monthly family income; (d) number of children in the family; (e) parents' educational attainment; and (f) parents' occupation?

2. What is the perceived level of effectiveness of MAPTV on the Mathematics learning of Grade 6 pupils with respect to: (a) understanding mathematical concepts; (b) computational skills; and (c) problem-solving skills?

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3. Is there a significant difference in the perceived level of effectiveness of MAPTV when respondents are grouped according to the profile variables in Question 1?

4. What is the level of academic performance of the pupil-respondents in Mathematics, based on their average grades for the first quarter?

5. Is there a significant relationship between the perceived level of effectiveness of MAPTV and pupils' academic performance in Mathematics?

6. Based on the findings, what action plan may be proposed to further support and improve the Mathematics performance of Grade 6 pupils?

***Significance of the Study***

**Curriculum Planners.** Findings may serve as a reference for school administrators and supervisors in designing well-organized programs and projects for faculty development within the division.

**School Administrators.** Results may guide school leaders in planning, supporting, monitoring, and sustaining technology-assisted learning interventions that respond to pupils' numeracy needs.

**Mathematics Teachers.** The study may serve as a baseline for developing quality instructional materials and remediation programs suited to the needs of 21st-century learners.

**Pupils.** Findings may help pupils recognize how supplementary video resources can support their own learning, motivating stronger study habits inside and outside the classroom.

**Parents.** Results may encourage parents to take a more active role in supporting their children's learning activities and in cooperating with the school.

**Future Researchers.** This study may serve as a reference point and data source for related studies on instructional video materials and other supplementary learning resources.

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## Methods

### *Research Design*

This study used a descriptive-survey research design, appropriate for describing the profile of respondents and their perceptions of MAPTV's effectiveness, and a correlational approach to examine the relationship between perceived effectiveness and academic performance. Because the design is descriptive-correlational rather than experimental, it can establish association but not causation between MAPTV use and Mathematics performance.

### *Participants*

The respondents were eighty-six (86) Grade 6 pupils enrolled in Mathematics at Subay Elementary School during the second quarter of School Year 2025–2026. All Grade 6 pupils of the school were included as respondents.

### *Research Instrument*

Data were gathered using a researcher-developed questionnaire checklist comprising two parts. Part I gathered respondents' profiles on sex, sibling position, monthly family income, number of children in the family, parents' educational attainment, and parents' occupation. Part II measured the perceived effectiveness of MAPTV in Mathematics learning with respect to understanding mathematical concepts, computational skills, and problem-solving skills, using a five-point Likert scale.

**Table A.** ***Scale for Perceived Level of Effectiveness of MAPTV***

| Scale | Range | Verbal Interpretation |
|---|---|---|
| 5 | 4.50 – 5.00 | Very Much Effective |
| 4 | 3.50 – 4.49 | Much Effective |
| 3 | 2.50 – 3.49 | Effective |
| 2 | 1.50 – 2.49 | Moderately Effective |
| 1 | 1.00 – 1.49 | Not Effective |

Academic performance in Mathematics was based on pupils' average first-quarter grades, interpreted using the DepEd grading scale below.

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**Table B.** ***Scale for Academic Performance in Mathematics***

| Grade Range | Verbal Interpretation |
|---|---|
| 90% and above | Outstanding |
| 85%–89% | Very Satisfactory |
| 80%–84% | Satisfactory |
| 75%–79% | Fairly Satisfactory |
| 70%–74% | Did Not Meet Expectations |

***Intervention: Development and Implementation of MAPTV***

MAPTV was designed by the researcher as a supplementary instructional material for Grade 6 Mathematics and Araling Panlipunan. For Mathematics, the tutorial videos and accompanying handouts focused on identified least-mastered competencies in fractions — particularly addition, subtraction, multiplication, and division of fractions — and were designed to provide additional explanations, worked examples, guided practice, and opportunities for review. The materials were implemented by the researcher with the support of the Mathematics teachers at Subay Elementary School during the second quarter.

***Data Analysis***

Descriptive and inferential statistics appropriate to each research question were used. Frequency, percentage, and rank distribution were used to describe the respondents' profile. The weighted mean was used to determine the perceived level of effectiveness of MAPTV in each dimension. One-way analysis of variance (ANOVA) was used to test for significant differences in perceived effectiveness across profile groups. Frequency, mean, and standard deviation were used to describe pupils' academic performance in Mathematics. Pearson correlation analysis was used to determine the relationship between perceived MAPTV effectiveness and pupils' academic performance. All tests were evaluated at the .05 level of significance.

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## Results

### *Profile of Respondents and Differences in Perceived Effectiveness*

Research Question 1 called for a description of respondents by sex, sibling position, monthly family income, number of children in the family, parents' educational attainment, and parents' occupation; Research Question 3 called for a test of differences in perceived MAPTV effectiveness across these same variables.

Based on the profile data described in the original report, the majority of Grade 6 respondents were female and first-born, and belonged to families with a monthly income below ₱10,000 and two to three children. Most fathers and mothers had reached high school as their highest educational attainment; fathers were most commonly employed as construction workers or fishermen, and mothers were most commonly engaged in unpaid household work. When perceived MAPTV effectiveness was compared across these profile variables using one-way ANOVA, no statistically significant difference was found for sex, sibling position, monthly family income, number of children in the family, or parents' occupation ($p > .05$); a statistically significant difference was found only for parents' educational attainment ($p < .05$).

### *Perceived Effectiveness of MAPTV: Understanding Mathematical Concepts*

**Table 1.** ***Level of Effectiveness of MAPTV on Grade 6 Pupils' Mathematics Performance as Perceived by Themselves, With Respect to Understanding Mathematical Concepts***

| With the utilization of MAPTV, I… | Weighted Mean | Verbal Interpretation | Rank |
|---|---|---|---|
| 1. Learn to connect mathematical ideas and their applications. | 4.01 | Much Effective | 8 |
| 2. Learn mathematical concepts well and make complete understanding. | 4.06 | Much Effective | 5 |
| 3. Become active in class discussion and generalize the information acquired. | 3.99 | Much Effective | 9 |
| 4. Relate Mathematics ideas to everyday life. | 4.02 | Much Effective | 7 |
| 5. Learn to reason mathematically. | 4.03 | Much Effective | 6 |
| 6. Work together to make sense of mathematics. | 4.09 | Much Effective | 2 |
| 7. Develop confidence to explain ideas on topics discussed by the teacher. | 4.08 | Much Effective | 3 |

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| With the utilization of MAPTV, I… | Weighted Mean | Verbal Interpretation | Rank |
|---|---|---|---|
| 8. Immediately construct and explain mathematics without fear of making mistakes. | 3.83 | Much Effective | 10 |
| 9. Articulate thoughts and connect new concepts to prior knowledge. | 4.07 | Much Effective | 4 |
| 10. Focus on the mathematical skills embedded within activities. | 4.11 | Much Effective | 1 |
| **Overall Weighted Mean** | **4.03** | **Much Effective** | |

Table 1 shows an overall weighted mean of 4.03, interpreted as Much Effective, for Understanding Mathematical Concepts. All ten items were rated Much Effective. The highest-rated item was "I focus on the mathematical skills embedded within activities" (M = 4.11), and the lowest-rated was "I immediately construct and explain mathematics without fear of making mistakes" (M = 3.83).

***Perceived Effectiveness of MAPTV: Computational Skills***

**Table 2.** ***Level of Effectiveness of MAPTV on Grade 6 Pupils' Mathematics Performance as Perceived by Themselves, With Respect to Computational Skills***

| With the utilization of MAPTV, I… | Weighted Mean | Verbal Interpretation | Rank |
|---|---|---|---|
| 1. Learn to solve problems. | 4.08 | Much Effective | 1.5 |
| 2. Break down complex problems into simpler problems. | 3.81 | Much Effective | 10 |
| 3. Rely on themselves to determine whether something is mathematically correct. | 4.01 | Much Effective | 5 |
| 4. Understand algorithms and design simple steps to solve problems. | 4.02 | Much Effective | 4 |
| 5. Enhance computational skills by applying strategies accurately and efficiently. | 4.08 | Much Effective | 1.5 |

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| With the utilization of MAPTV, I… | Weighted Mean | Verbal Interpretation | Rank |
|---|---|---|---|
| 6. Apply mental strategies and algorithms based on place value and properties of operations. | 3.90 | Much Effective | 9 |
| 7. Answer complex problems using multiple steps. | 3.94 | Much Effective | 7.5 |
| 8. Easily follow the sequential rules to solve a mathematical problem. | 4.03 | Much Effective | 3 |
| 9. Apply fundamental operations in solving mathematical exercises. | 4.00 | Much Effective | 6 |
| 10. Understand mathematical formulas comprehensively. | 3.94 | Much Effective | 7.5 |
| **Overall Weighted Mean** | **3.98** | **Much Effective** | |

Table 2 shows an overall weighted mean of 3.98, interpreted as Much Effective. The highest-rated items, tied at M = 4.08, were "I learn to solve problems" and "I enhance computational skills by applying strategies accurately and efficiently." The lowest-rated item was "I break down complex problems into simpler problems" (M = 3.81).

***Perceived Effectiveness of MAPTV: Problem-Solving Skills***

**Table 3.** ***Level of Effectiveness of MAPTV on Grade 6 Pupils' Mathematics Performance as Perceived by Themselves, With Respect to Problem-Solving Skills***

| With the utilization of MAPTV, I can… | Weighted Mean | Verbal Interpretation | Rank |
|---|---|---|---|
| 1. Analyze word problems skillfully. | 3.91 | Much Effective | 7.5 |
| 2. Make use of patterns in solving word problems. | 3.99 | Much Effective | 2 |
| 3. Hunt for information and clues in solving word problems. | 4.01 | Much Effective | 1 |
| 4. Identify the specific information needed in solving mathematical problems. | 3.92 | Much Effective | 6 |

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| With the utilization of MAPTV, I can… | Weighted Mean | Verbal Interpretation | Rank |
|---|---|---|---|
| 5. Scrutinize and break down facts to solve mathematical problems. | 3.94 | Much Effective | 5 |
| 6. Apply information obtained to solving problems. | 3.91 | Much Effective | 7.5 |
| 7. Analyze data logically to answer problems. | 3.95 | Much Effective | 4 |
| 8. Identify the aspects of a problem and apply problem-solving strategies. | 3.90 | Much Effective | 9.5 |
| 9. Learn to collect, organize, visualize, and assimilate data. | 3.90 | Much Effective | 9.5 |
| 10. Learn to analyze information logically and sensibly. | 3.97 | Much Effective | 3 |
| **Overall Weighted Mean** | **3.94** | **Much Effective** | |

Table 3 shows an overall weighted mean of 3.94, interpreted as Much Effective. The highest-rated items were "I hunt for information and clues in solving word problems" (M = 4.01) and "I make use of patterns in solving word problems" (M = 3.99). The lowest-rated items, tied at M = 3.90, were "I identify the aspects of a problem and apply problem-solving strategies" and "I learn to collect, organize, visualize, and assimilate data."

***Summary Across the Three Dimensions***

**Table 4.** ***Summary of the Level of Effectiveness of MAPTV on Grade 6 Pupils' Mathematics Performance, by Aspect***

| Aspect | Weighted Mean | Verbal Interpretation | Rank |
|---|---|---|---|
| Understanding Mathematical Concepts | 4.03 | Much Effective | 1 |
| Computational Skills | 3.98 | Much Effective | 2 |
| Problem-Solving Skills | 3.94 | Much Effective | 3 |
| Composite Weighted Mean | 3.98 | Much Effective | |

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Table 4 shows a composite weighted mean of 3.98, interpreted as Much Effective across all three aspects. Understanding Mathematical Concepts ranked first (M = 4.03), followed by Computational Skills (M = 3.98) and Problem-Solving Skills (M = 3.94).

***Academic Performance in Mathematics***

Pupils' average first-quarter grades in Mathematics yielded a mean of 84.40 (SD = 5.32), with a highest grade of 95 and a lowest grade of 78, interpreted as Very Satisfactory. The modal grade range was 85–89, accounting for 41 percent of respondents.

***Relationship Between Perceived MAPTV Effectiveness and Academic Performance***

**Table 5.** ***Correlation Between Perceived Level of Effectiveness of MAPTV and Pupils' Academic Performance in Mathematics***

| Aspect | r-value | p-value | $H_0$ | Verbal Interpretation |
|---|---|---|---|---|
| Understanding Mathematical Concepts | 0.760 | 0.002 | Rejected | Significant |
| Computational Skills | 0.862 | 0.043 | Rejected | Significant |
| Problem-Solving Skills | 0.771 | 0.003 | Rejected | Significant |

Table 5 presents the relationship between perceived MAPTV effectiveness and pupils' Mathematics performance. Correlation coefficients were .760 for Understanding Mathematical Concepts (p = .002), .862 for Computational Skills (p = .043), and .771 for Problem-Solving Skills (p = .003). All reported p-values fall below the .05 level of significance; the null hypothesis of no significant relationship is therefore rejected for all three dimensions, indicating statistically significant positive relationships between perceived MAPTV effectiveness and Mathematics performance.

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**Discussion**

Grade 6 pupils at Subay Elementary School perceived MAPTV as Much Effective in supporting their Mathematics learning across all three measured dimensions, with the strongest perceived gains in understanding mathematical concepts. This pattern is consistent with Pachuri's (2019) observation that teacher-created videos help learners understand mathematical concepts and complement other instructional materials by allowing repeated, self-paced viewing. It is also consistent with Insorio (2022), who found that video lessons helped students understand mathematics concepts while complementing lessons delivered through modules, with students particularly valuing the ability to see and hear their teacher explain the lesson directly.

The relatively strong ratings for computational-skills items — particularly “I learn to solve problems” and “I enhance computational skills by applying strategies accurately and efficiently” — align with Moghavvemi's (2018) finding that students who use YouTube as a complementary learning tool tend to rely on it to work through academic problems and to seek information relevant to a subject. The comparatively lower rating for “I break down complex problems into simpler problems” suggests that while MAPTV supported procedural fluency, pupils may still need more explicit, teacher-guided modeling of problem-decomposition strategies — an area that video alone may not fully address.

For problem-solving skills, the lowest-rated items — identifying the aspects of a problem and applying problem-solving strategies, and collecting, organizing, visualizing, and assimilating data — point to higher-order skills that typically require more scaffolded practice than a video format can provide on its own. This is broadly consistent with Rainsford (2018), who emphasized that problem-solving skills, while central to Mathematics instruction, are also complex, real-life competencies that benefit from deliberate instructional attention beyond a single medium.

The absence of significant differences in perceived effectiveness across sex, sibling position, monthly family income, number of children in the family, and parents' occupation suggests that MAPTV was perceived similarly well regardless of these background characteristics — a reassuring finding for a resource intended to serve as a general supplementary tool for the whole class rather than a targeted intervention for a specific subgroup. The significant difference found for parents' educational attainment merits closer attention in a revised version of this study: it may reflect differences in the home support pupils receive when working through supplementary materials, though the original manuscript did not provide the group means needed to interpret the direction of this difference.

The statistically significant positive relationships between perceived MAPTV effectiveness and Mathematics performance, across all three dimensions, are consistent with Habes (2020), who found that social-media and YouTube-related factors were meaningful predictors of students' academic performance, and with Baylon (2015), who emphasized that the use of instructional materials promotes better understanding of lessons and improved student performance. However, because this study used a descriptive-correlational rather than an experimental design, these relationships describe an association — pupils who rated MAPTV more favorably also tended to perform better — and do not establish that MAPTV use caused the improvement in performance. Pupils' Mathematics performance is plausibly also shaped by classroom instruction, prior knowledge, attendance, study habits, and family support, none of which were controlled for in this design.

***Limitations***

- The study was conducted in a single school with a modest sample size (n = 86), which limits the extent to which findings can be generalized to other schools or divisions.

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- Both the effectiveness measure and academic performance were based on self-report and school-recorded grades respectively, without an independent pretest–posttest comparison specific to MAPTV use.
- The descriptive-correlational design does not permit causal claims about MAPTV's effect on Mathematics performance.
- As noted in Section 3, the profile and ANOVA summary tables referenced in the original manuscript were not available for inclusion in this version and should be supplied before the study is finalized for submission or publication.

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**Conclusions**

- Grade 6 pupils at Subay Elementary School perceived MAPTV as Much Effective in supporting their Mathematics learning, with the strongest perceived gains in understanding mathematical concepts, followed by computational skills and problem-solving skills.
- Perceived MAPTV effectiveness did not differ significantly across sex, sibling position, monthly family income, number of children in the family, or parents' occupation, but did differ significantly according to parents' educational attainment.
- Pupils' first-quarter Mathematics performance was Very Satisfactory.
- There was a statistically significant positive relationship between perceived MAPTV effectiveness and Mathematics academic performance across all three measured dimensions. This relationship supports the continued use of MAPTV as a supplementary learning resource, but does not establish a causal effect, given the descriptive-correlational design.

**Recommendations**

- The school administration may strengthen access to appropriate digital learning resources, including available devices, offline copies of videos, and reliable connectivity where feasible.
- Administrators may hold workshops and seminars to train teachers in integrating technology, including tutorial videos, into Mathematics instruction.
- Mathematics teachers may continue using MAPTV as a supplementary resource for remediation, reinforcement, enrichment, and review, particularly for identified least-mastered competencies such as operations on fractions.
- Future action research may pair MAPTV or similar video-based interventions with a pretest–posttest or quasi-experimental design to allow stronger causal inference about their effect on Mathematics performance.
- Similar studies may be conducted in other subject areas (e.g., Science, English) or grade levels to examine whether the pattern of findings observed here holds more broadly.

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