

## LEARNING OUTCOMES BETWEEN SIXTH-GRADERS IN MULTIGRADE CLASSES AND MONOGRADE CLASSES

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### ABSTRACT

*Filipino students' scores and performances in international tests such as the Program for International Student Assessment (PISA) indicate the country's performance in Science, Mathematics, and reading which is linked to the level of students' critical thinking. Interrelated to this, the National Achievement Test found that pupils in Gingoog City Division are quite poorly whose learning outcomes are influenced by its schooling: rural and urban. The Philippines is a country that is composed of many multigrade schools as an alternative to monograde schools. With this, researchers disclose the level of critical thinking as learning outcomes of Grade 6 students in multigrade and monograde classes and figure out if multigrade education is a factor to consider. The study used a causal-comparative design of research and cluster sampling, consisting of four multigrade Grade 6 classes with 44 total respondents and two monograde schools with 46 total respondents in the same district of Gingoog City. For the analysis of data, frequency and percentage were utilized to measure the students' reading critical thinking in multigrade and monograde classes respectively, and Mann-Whitney test was performed to determine the significant difference between the critical thinking levels of both groups. Findings revealed that there is no significant difference in students' achievement between multigrade and monograde courses. In terms of critical thinking, students in the monograde classroom performed fairly better than the students in the monograde classroom despite of the same quality of instruction. Multigrade education has no impact on critical thinking outcomes. Thus, it is recommended that multigrade implementation be continued as a viable learning alternative to the standard monograde classroom.*

*Keywords – Critical Thinking, Learning Outcomes, Monograde Classes, Multigrade Classes, Performance*

### INTRODUCTION

The Philippines has been struck with reports on the low performances of Filipino students in international tests which implies that. Characteristics such as rural and urban schooling (Sumida & Kawata, 2021), parental education levels (Pishghadam & Zabihi, 2011), and socioeconomic position all influence learning outcomes (Mwebu et al., 2020). As an alternative to monograde schools, our country has many multi-

grade schools. When examining the learning outcomes of our kids across the country, which have been varying in recent years, this environment is one issue to discuss. The scores and performances of Filipino students in the 2018 PISA (Trinidad, 2020) and other international tests seem to suggest that the country's performance in Science and Mathematics and reading comprehension is deteriorating, which is attributed to low critical thinking (Hobri et al., 2018). In the division of Gingoog City, there are many multigrade



schools alongside monograde schools, and schools with at least one multigrade classroom. In the recent National Achievement Test (DepEd, 2015), results revealed that students of the division performed poorly. Multigrade classes could have contributed to the results, but that is only plausible since research findings on multigrade education have been inconsistent across many regions.

Multigrade classrooms are a way to keep teachers and schools afloat in the face of declining student enrollment, which in some internal communities means taking multigrade classes or not attending school at all (Msimanga, 2020). The monograde classroom is the most well-known form of classroom organization. Because of their prudent financial benefits and ability to sustain classrooms in the face of falling or small student enrollments, multigrade classrooms are beneficial when offered as an alternative to the monograde classroom to ensure a sustained educational program for rural students, and often, poor regions (Blease & Condy, 2015). Multigrade education is an acceptable, and sometimes preferable, alternative because of the required specialized teaching through differentiated instruction (Johnson, 2010) and the benefits of capable peer collaboration (Linehan, 2013). However, research on multigrade student achievement has produced mixed and inconsistent outcomes (Brinegar, 2010).

Multigrade education is the subject of a lot of research (Cornish, 2021), and there are a lot of disputes over the supposed benefits (Motamedi & Khajouie, 2020). It's very important to compare the effects of multigrade versus monograde schooling on student academic growth. This study will aid other researchers in better understanding the educational system.

Multigrade education is a common educational framework seen in both developed and developing countries around the world (Blease & Condy, 2015). Multigrade education is also expected to develop in the years as a better solution to the monograde classroom (Cornish, 2021). However, due to the wide range of multigrade education implementation methodologies, research on the effects of this classroom arrangement on student achievement remains unclear (Brinegar, 2010) and requires further investigation (Blease & Condy, 2015).

The purpose of education is for pupils to be able to learn new things. A monograde or multigrade classroom is one that is arranged to offer instruction to students. In many jurisdictions, multigrade education is the sole way to learn (Msimanga, 2020). However, given the data on the impact of multigrade education on student achievement is inconclusive and controversial, determining whether multigrade education is a viable alternative to monograde education is an issue that requires more research (Brinegar, 2010).

There was no noticeable difference between multigrade and monograde schools according to an early study in multigrade teaching (Motamedi & Khajouie, 2020). Findings revealed that multiage schooling has a bad classroom structure when compared to monograde courses is incorrect (Engin, 2018). However, in this day of high-stakes testing and accountability, a substantial body of research on the benefits of multigrade education on student achievement reveals inconsistent and conflicting findings.

The evidence on whether multigrade education is a feasible alternative to monograde education is inconclusive. Despite the fact that it has been determined that a choice between multigrade education and no education is frequently the case (Msimanga, 2020), additional research is still needed (Casserly et al., 2019). The current study examined standardized student achievement results to determine whether multigrade education is a viable alternative to monograde education and, if so, whether it should be continued.

Today, the Department of Education is working to develop our students into critical thinkers via reading in multigrade and monograde schools around the country. According to Silvestri (2018), reading is more than just picking words from a text to read; it is a process that involves critical thinking, idea evaluation, and application to everyday events. Critical thinking is essential in students' engagement with academic pursuits, as it will determine how successful their future profession will be. Filipino students continue to experience difficulties acquiring competency, even though evidence shows that the Philippines' educational quality is deteriorating. When students

are asked to infer, detect assumptions, deduce, interpret, synthesize, and assess an argument, they show a lack of critical thinking, according to Labadan (2015). Visande (2014), Salas (2016), and Labadan (2015) found that pupils' necessary thinking skills were lacking. Critical thinking skills are difficult to acquire in high school students, according to Hove (2011). With these findings in mind, it's important emphasizing that developing higher-order thinking skills is critical for students' success, regardless of whether they're in a multigrade or monograde classroom.

### OBJECTIVES OF THE STUDY

This study sought to determine if there is a significant difference in the critical thinking as learning outcomes of Grade 6 students between multigrade and monograde classes and to figure out if multigrade is a significant factor in the students' learning outcomes.

### METHODOLOGY

This study utilized a causal-comparative design, which is a non-experimental research method for determining the reasons or effects of differences. Data were collected from pre-formed groups in this design, and the independent variable was not altered in the experiment. Data were collected from pre-formed groups using this causal-comparative approach, and the independent variable was not modified as in experimental investigations (O'Dwyer & Bernauer, 2013). For this, the researchers sought a population on which the data were gathered from an already existing appropriate group, which in this study were the students from the multigrade and monograde classrooms. It aimed to determine the difference between the students' critical thinking as learning outcomes in multigrade and monograde classes and infer if multigrade education affects crucial thinking among students.

Through cluster sampling, this study was conducted in one district of the Gingoog City division. Four multigrade schools in the district were chosen as the research site. These schools are remote to the central part of Gingoog City and offered multigrade classes from Grade 1 to Grade

6. There were about 44 grade six students from these schools, and all were chosen as respondents. Meanwhile, two monograde schools were chosen from the same district. It has a medium-sized population and also remote to the central part of Gingoog City. One Grade 6 class with a total of 24 students was chosen from one of the two schools, and another Grade 6 class in the other school with 22 Grade 6 students was selected with 46 respondents in monograde classes.

The researchers used one instrument. This instrument is the Critical Thinking Test adapted from Labadan (2015). This instrument contains thirty-five items (35) that measure the students' level of inference, recognition of assumptions, deduction, interpretation, synthesis, and evaluation of an argument.

The instrument's validity was submitted for validation to three experts. It ensured that the passages and questions were fitted to the Grade-6 pupils. For reliability, pilot testing was conducted on another group of Grade-6 pupils with the same characteristics as the respondents. Then, the reliability evaluation using Kuder-Richardson 20 was used, which revealed a result of 0.70 described as reliable.

The researchers asked permission from the Schools Division Superintendent of Gingoog City Division and the school heads and principals of the research sites to conduct the study. Then, Consent Forms were secured. Upon approval of the request, the researcher started validating the reading comprehension test in a Grade 6 class of one of the schools. After the research instrument validation, the researchers started conducting the study.

The researchers went to the research sites and coordinated with the advisers of the respondents. Because of the threat of COVID-19, the researchers had to make home visitations to each of the respondents and strictly followed the minimum health protocols suggested by Inter-Agency Task Force (IATF). The 35-item Critical Thinking Test adapted from Labadan (2015) was administered to acquire the necessary data for the study. The information was treated using SPSS to know the difference between the critical thinking skills of the students in multigrade and monograde



classes and make inferences on how multigrade education impacts students' critical thinking.

Correspondingly, the critical thinking was measured through a 35-item Critical Thinking Test composed of items on the students' level of inference, recognition of assumptions, deduction, interpretation, synthesis, and evaluation of an argument. Below is the scale to measure the critical thinking level:

Frequency and percentage were utilized to measure the students' reading critical thinking in multigrade and monograde classes respectively, and, since the scores of students in both multigrade and monograde classes failed in the normality test using Shapiro-Wilk, the data also fell in the assumptions of independent t-test. Therefore, Mann-Whitney Test was performed to determine the significant difference between the critical thinking levels of both groups for data analysis and interpretation.

## RESULTS AND DISCUSSION

### 1. Critical Thinking Level of Students in Multigrade Schools

Table 1 shows the distribution of multigrade students' critical thinking learning outcomes at various levels.

As illustrated in Table 1, most students in the multigrade classes at 32% (f = 14) had a fair critical thinking level. Others were very good at 30% (f = 13); good at 27% (f = 12); poor at 9% (f = 4); and excellent at 2% (f = 1). It implies that most multigrade students performed fairly in the critical thinking test. Their performance was not found to be good, meaning they still need enhancement in their critical thinking level.

Various factors affect the development of critical thinking. Learning outcomes are influenced by characteristics such as rural and urban schooling (Sumida & Kawata, 2021) parental education levels (Pishghadam & Zabihi, 2011) and socioeconomic status (Mwebu et al., 2020). The parents' socioeconomic background and educational background significantly affect the learners' academic performance, especially in mathematics and language (Farooq et al., 2011).

**Table 1**  
*Frequency and Percentage Distribution of Multigrade Students*

Range	Point Value	Description	Frequency	Percent
0-7 (1.00-1.50)	1	Poor	4	9%
8-14 (1.51-2.50)	2	Fair	14	32%
15-21 (2.51-3.50)	3	Good	12	27%
22-28 (3.51-4.50)	4	Very Good	13	30%
29-35 (4.51-5.00)	5	Excellent	1	2%
<b>Total</b>		<b>100</b>	44	100%

There are also various strategies to help students with fair critical thinking make more progress. For one, the teacher's support is significant in developing and improving the necessary thinking level among the learners. Not only does it help learners identify the right ways or correct manners in the process of learning, but it also helps them in some other vital ways. The teacher's influence, ideas, and expectations of the learners' capabilities impact their academic performance and achievements (Ganyaupfu, 2013).

### 2. Critical Thinking Level of Students in Monograde Schools

Table 2 shows the distribution of monograde students' critical thinking learning outcomes at various levels.

The table below exhibits that most students in the monograde classes at 74% (f = 34) had good critical thinking levels. Others were very good at 9% (f = 4); fair at 15% (f = 7); poor at 2% (f = 1); and excellent at 0% (f = 0). It entails that most monograde students performed well in the critical thinking test. However, only very few at very good and excellent levels, meaning these students need more learning practices to improve their critical thinking.



**Table 2**  
*Frequency and Percentage Distribution of Monograde Students*

Range	Point Value	Description	Frequency	Percent
0-7 (1.00-1.50)	1	Poor	1	2%
8-14 (1.51-2.50)	2	Fair	7	15%
15-21 (2.51-3.50)	3	Good	34	74%
22-28 (3.51-4.50)	4	Very Good	4	9%
29-35 (4.51-5.00)	5	Excellent	0	0%
<b>Total</b>		<b>100</b>	46	100%

Inferences, assumptions, conclusions, syntheses, comparisons, and articulating points of view are all examples of these skills. What could cause so many students' inability to display intellectual competence? Looking at the critical thinking learning outcomes of the students suggests that there is still growth potential. Regardless of their language ability levels, all language learners must participate in critical thinking, according to (Cosgun & Atay, 2021). However, according to Tung & Alissa (2021), progress is equally contingent on the students' intellectual knowledge and devotion.

As a result, student achievement results from personal motivation and nurturing. The findings of this study are comparable to those of Tamayo et al. (2014), who conducted a cross-sectional survey of the degree of critical thinking skills of students at CEU Malolos' College of Management and Technology. It looked at deduction, induction, meaning and fallacies, assumption, credibility, and other facets of critical thinking. The findings demonstrated that their mean scores also climbed when the respondents' year level grew. With the encouragement of their teachers, it is safe to assume that the respondents' critical thinking skills will improve as their year level rises. To build critical thinking skills, it is necessary to have prior information. According to (Cosgun & Atay, 2021), to demonstrate critical thinking skills, second language learners must employ

information, experience, and world knowledge in ways that allow them to seek alternatives, make inferences, raise questions, and solve issues. Students can use the information they have learned to process, understand, and solve problems.

### 3. Critical Thinking Level of Students in Multigrade and Monograde Classes

Table 3 presents the difference between the critical thinking level of students in multigrade and monograde classes.

*Table 3*  
*Difference in the Critical Thinking Level of Students in Multigrade and Monograde Classes*

Score	Multigrade		Monograde		Z	p
	Mean	SD	Mean	SD		
Critical Thinking Level	16.6	6.5	16.7	3.6	-.733	.464

The data depict that the difference of multigrade and monograde classes scores on the critical thinking level provides sufficient evidence to accept the hypothesis that there is no significant difference between the two groups. Specifically, it shows a mean of 16.06 (SD = 6.5) for the multigrade classes and 16.7 (SD = 3.6) for the monograde classes, favoring the latter. There is a mean difference of -0.54, which implies that the difference in the critical thinking between the two groups is not significant. There is no significant difference in both groups' critical thinking levels, indicating an equal quality of education between multigrade and monograde classes. The standard deviation also shows to be at 6.5 for the multigrade classes and 3.6 for monograde classes, which suggests that the respondents' scores in monograde classes are closer to the mean score than the scores of the multigrade classes. It implies that few learners in the multigrade classes performed better than the others, while they performed almost equally in the monograde classes. It also shows that the p-value is 0.542, higher than the 0.05 level of significance. There is no significant difference between the critical



thinking level of multigrade and monograde classes. In this case, the null hypothesis is accepted.

Multigrade education is founded on the academic principle of personalized instruction (Condy & Blease, 2014) and the option for student peer interaction to optimize educational potential (Linehan, 2013). The educational premise of learning through social contact continues to impact the underlying philosophy of classroom management in multigrade classrooms (Comish, 2009). In a multigrade classroom, peer cooperation is an effective teaching and learning organization that improves student learning (Msimanga, 2020). Evidence on the effects of multigrade education on student progress, on the other hand, is mixed (Casserly et al., 2019), inconsistent (Linehan, 2013), and inconclusive (Brinegar, 2010).

Student achievement is influenced by socio-demographic characteristics, according to a study (Hacieminoglu et al., 2009). Rural and urban schooling (Sumida & Kawata, 2021), parental education (Pishghadam & Zabihi, 2011), and socioeconomic position all influence student accomplishment (Mwebu et al., 2020). These variables were utilized as a control in this investigation. To match children and account for aspects that affect student learning outside of the classroom, demographic parameters for rural versus urban schools, parental education, and socioeconomic position were controlled.

Multigrade classes can be used in place of monograde classes. In terms of student achievement, research into the differences between multigrade and monograde learning is unclear (Brinegar, 2010). In the current study, there was no significant difference in reading comprehension between the multigrade and monograde groups of 6th graders. The mean critical thinking level of monograde pupils was 0.54 greater than that of multigrade students. Between the two classroom organizations, there is no statistically significant difference ( $p = .464$ ). This reveals that, despite earlier research categorizing differences in learning across multigrade and monograde classes as speculative (Comish, 2009), the conclusion reached in this study is unsupported. There was no significant difference in student achievement in reading for the full Grade 6

multigrade group when compared to an equal controlled sample from the monograde population.

## CONCLUSION

When 44 multigrade and 46 monograde students' critical thinking levels were compared, there is no evidence that students in multigrade classrooms received an inferior education than in conventional monograde schools. There is no significant difference in student achievement between multigrade and monograde courses. Students in the monograde classroom did better in some extent in critical thinking than students in the monograde classroom. The multigrade students receive the same quality of instruction as monograde students, and that multigrade education has no impact on critical thinking results. The present study, on the other hand, backs up previous research that found no significant difference between multigrade and monograde.

## RECOMMENDATION

Multigrade implementation should be continued as a viable learning alternative to the traditional monograde classroom. Furthermore, the outcomes of this study show that multigrade education is a feasible option to monograde education for educational institutions such as the Department of Education.

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