

A Comparative Data Analysis of Grade 1 Students' Performance in the First Periodical Test

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Abstract— This quantitative, non-experimental study examined the first-periodical-test performance of 22 Grade 1 learners in Mathematics, Good Manners and Right Conduct (GMRC), Makabansa, Reading, and Language. Descriptive statistics and Pearson product-moment correlations were used to describe subject scores and examine associations across learning areas. Mathematics recorded the highest mean score ($M = 25.05$, $SD = 3.43$), whereas Language had the lowest ($M = 18.59$, $SD = 3.50$). The strongest association was between GMRC and Reading ($r = .822$, $p < .001$). All ten reported subject-pair correlations were positive and statistically significant. These findings support using assessment evidence to identify learners who may benefit from additional instruction, particularly in Language, while recognizing that correlations do not establish causal relationships. Because subject test totals and score scales were not documented, direct comparisons of raw subject means should be interpreted cautiously.

Keywords— Grade 1 learners; periodical test; academic performance; Pearson correlation; foundational learning

I. INTRODUCTION

In Grade 1, students embark on a foundational journey in their educational experience, where key skills in language, reading and literacy, mathematics, Makabansa, and Good Manners and Right Conduct (GMRC) are developed. Language skills encompass vocabulary acquisition, sentence structure, and comprehension, which are essential for effective communication. Reading and literacy focus on phonemic awareness, decoding, and understanding texts, forming the basis for lifelong learning. Mathematics introduces basic arithmetic, problem-solving, and logical reasoning, crucial for everyday life.

Makabansa emphasizes national identity and cultural awareness, fostering a sense of belonging and civic responsibility among young learners. Meanwhile, GMRC instills values of respect, responsibility, and empathy, shaping students into well-rounded individuals.

Analyzing student performance in these subjects is critical for identifying strengths and weaknesses in their skills. This assessment helps educators understand areas that require additional support and informs instructional strategies that can enhance learning outcomes. By focusing on these foundational skills, educators can better prepare students for future academic challenges and promote holistic development in their early years.

Recent studies underscore the importance of early academic assessments in shaping students' educational trajectories. Casido (2024) examined the relationship between foundational literacy skills and academic achievement among Grade 1 pupils in Zamboanguita District 2, Negros Oriental. The author assessed the listening, comprehension, letter-sound identification, initial-sound discrimination, and familiar-word reading skills. The findings shows that several foundational literacy skills were at approximately the borderline level of performance, while the learners' overall academic performance was satisfactory. Moreover, the findings emphasize the

importance of developing basic literacy competencies during Grade 1.

In the realm of mathematics, Devlin, Jordan, and Klein (2022) examined the relationship between early number competence and later mathematics achievement among pre-kindergarten, kindergarten, and Grade 1 learners. The study included 150 children at each grade level and examined three areas of early number competence: number, number relations, and number operations. The finding shows that all three areas significantly predicted later mathematics achievement even after controlling for other variables. In addition, the authors found differences according to achievement level: number relations were particularly important for lower-achieving learners, while number operations were more strongly related to achievement among higher-achieving learners.

The Department of Education (2020) explained that Republic Act No. 11476 institutionalized Good Manners and Right Conduct (GMRC) and Values Education in basic education. This law strengthened the role of values education in developing learners' decision-making, attitudes, and behaviors and emphasized the development of learners who demonstrate the Filipino core values of Maka-Diyos, Maka-tao, Makakalikasan, and Makabansa.

The Department of Education (DepEd) introduced Makabansa as a new transdisciplinary learning area for Grades 1–3 under the MATATAG Curriculum. According to the Department of Education (2023), the curriculum is intended to help learners become active and responsible members of their communities and develop as holistic Filipino learners. Moreover, the DepEd MATATAG Curriculum framework, Makabansa integrates concepts and skills from civics, arts and culture, history, and health and well-being to develop learners' personal and cultural identity, creativity, health, and ability to interact with others.

In the Philippine context, Semilla et al. (2023) addressed early reading in the mother tongue. The authors developed contextualized e-learning materials for struggling Grade 1 readers. The findings showed that the e-learning materials

improved learners' letter-sound and word-blending abilities. Furthermore, content and ICT experts rated the materials excellent in terms of technical standards, content quality, and effectiveness. The researchers concluded that contextualized e-learning materials can serve as an interactive and engaging instructional intervention for developing early reading skills in the mother tongue.

Given these insights, examining Grade 1 test results through data analysis is essential. It not only provides a snapshot of student performance across multiple subjects but also informs educators about the effectiveness of their teaching strategies. By analyzing these results, educators can address specific learning gaps and enhance the overall educational experience for students.

The primary objective of this data analysis is to evaluate the academic performance of Grade 1 students across key subjects—language, reading and literacy, mathematics, Makabansa, and Good Manners and Right Conduct (GMRC). This analysis aims to identify specific areas of strength and challenge to inform targeted instructional strategies and interventions.

What are the mean score, standard deviation, and frequency of students above and below the mean of Grade 1 learners in language, reading, mathematics, Makabansa, and GMRC?

Is there language a significant correlation between learner's scores in language, reading, mathematics, Makabansa, and GMRC?

This analysis is significant for several reasons. Firstly, it provides educators with a comprehensive understanding of student performance, enabling them to assess the effectiveness of teaching methods and curriculum design. Secondly, by identifying areas that need improvement, educators can develop targeted interventions to support struggling students, thereby enhancing overall learning outcomes. Furthermore, these insights will help inform future curriculum adjustments and teaching practices, ultimately fostering a more effective learning environment for Grade 1 students.

II. METHODOLOGY

This study employs a quantitative data analysis approach to evaluate the Grade 1 first periodical test results. Utilizing a non-experimental method, this analysis systematically examines numerical data to provide a clear understanding of student performance across key subjects, including language, reading and literacy, mathematics, Makabansa, and Good Manners and Right Conduct (GMRC).

Data collection was conducted through scores obtained from a multiple-choice periodical test, which served as a summative assessment to gauge students' understanding and skills in each subject area. The test was specifically designed to align with the curriculum objectives and was administered at the end of the first grading period.

The instrument used for this analysis was the multiple-choice questionnaire, which included a range of questions aimed at assessing students' knowledge and comprehension. This format allows for efficient scoring and facilitates the identification of specific areas where students excel or struggle. The collected scores were analyzed statistically to determine averages, trends, and areas needing improvement. By

employing this methodology, the study aims to provide valuable insights into student performance and inform future instructional strategies.

The analysis of the Grade 1 first periodical test results utilized quantitative data analysis to evaluate student performance across five subjects: Mathematics, GMRC, Makabansa, Reading, and Language. The data set included scores from 22 students, providing a comprehensive view of their proficiency levels.

The dataset comprised first-periodical-test scores for 22 Grade 1 learners across five subjects. Means, standard deviations, and frequencies above and below the subject mean were reported, along with Pearson correlations between subject scores. The source document also mentions an ANOVA and post-hoc comparisons, but does not supply the test statistics, degrees of freedom, or detailed post-hoc results; those claims are therefore not presented as verified inferential findings in this article.

III. RESULTS AND DISCUSSION

Problem 1: What are the descriptive statistics of the learners' first-periodical-test scores?

TABLE 1. Descriptive Statistics of First-Periodical-Test Scores (N = 22)

Subject	Mean	SD	At/above mean; below
Mathematics	25.0455	3.42925	18; 4
GMRC	20.5909	4.48977	15; 7
Makabansa	19.9545	3.95784	15; 7
Reading	20.7273	2.54824	15; 7
Language	18.5909	3.50046	14; 8

Table 1 shows that Mathematics had the highest reported raw mean (25.05), while Language had the lowest (18.59). Eighteen of 22 learners were reported at or above the Mathematics mean, compared with 14 for Language. Because the maximum possible scores and test equivalence across subjects are not provided, these raw means cannot by themselves establish which subject had the highest proficiency. Similarly, scores below a group average do not automatically indicate failure or insufficient mastery.

In Mathematics, the mean was 25.05 (SD = 3.43), with 18 learners reported at or above the mean and four below.

In GMRC, the mean was 20.59 (SD = 4.49), with 15 learners at or above the mean and seven below.

In Makabansa, the mean was 19.95 (SD = 3.96), with 15 learners at or above the mean and seven below.

In Reading, the mean was 20.73 (SD = 2.55), with 15 learners at or above the mean and seven below.

Language had a mean of 18.59 (SD = 3.50); 14 learners were reported at or above the mean and eight below. Additional item-level or criterion-referenced evidence would help determine specific language skills requiring support.

Problem 2: Are the subject scores significantly correlated?

Table 2 summarizes the ten reported Pearson correlations. The coefficients range from .617 to .822, and each reported p-value is below .05.

The strongest observed correlation was between GMRC and Reading ($r = .822$, $p < .001$). This indicates that higher GMRC scores tended to accompany higher Reading scores within this sample, without establishing that one caused improvement in

the other. Park (2022) similarly examined associations between psychological characteristics and elementary academic performance.

TABLE 2. Pearson Correlations Among Five Subjects (N = 22)

Subject pair	r	Reported p
GMRC–Mathematics	.617	.002
GMRC–Makabansa	.653	.001
GMRC–Reading	.822	< .001
GMRC–Language	.728	< .001
Mathematics–Makabansa	.765	< .001
Mathematics–Reading	.639	.001
Mathematics–Language	.664	.001
Makabansa–Reading	.740	< .001
Language–Makabansa	.738	< .001
Language–Reading	.708	< .001

Note: Source values reported as $p = .000$ are presented as $p < .001$, because a p -value is not exactly zero.

GMRC was also positively associated with Mathematics ($r = .617$, $p = .002$), Makabansa ($r = .653$, $p = .001$), and Language ($r = .728$, $p < .001$). Khadijah et al. (2021) reported an association between character-education values and mathematics achievement.

Mathematics was positively correlated with Makabansa ($r = .765$, $p < .001$), Reading ($r = .639$, $p = .001$), and Language ($r = .664$, $p = .001$). Peng et al. (2020) likewise documented associations between mathematics and language skills.

Makabansa was correlated with Reading ($r = .740$, $p < .001$) and Language ($r = .738$, $p < .001$). Tyner and Kabourek (2021) discussed how social studies content can complement elementary literacy development.

Language and Reading were positively correlated ($r = .708$, $p < .001$), consistent with the importance of language skills for reading comprehension discussed by Dolean et al. (2021).

Overall, the ten reported subject-pair correlations were positive and statistically significant. These associations suggest shared patterns of achievement, but the cross-sectional design and small sample do not support causal claims or broad generalization.

IV. CONCLUSION

A study of the scores on the first periodical test from 22 Grade 1 students revealed that raw scores varied across the five areas (Mathematics, GMRC, Makabansa, Reading, and Language) and that there were consistently positive

relationships between the subjects. Mathematics had the highest raw mean and Language the lowest, although different test scales may limit direct comparisons. GMRC and Reading showed the strongest reported correlation ($r = .822$, $p < .001$). The findings can guide teachers in reviewing assessment items and planning responsive instruction, especially for learners who require additional language support. Future analyses should document test maxima, assessment validity, performance criteria, and full inferential statistics before drawing stronger conclusions.

REFERENCES

- [1] Casido, W. C. (2024). Cultivating early literacy: Impact on Grade One academic achievement. *Journal of Interdisciplinary Perspectives*, 2(6), 218–225. <https://doi.org/10.69569/jip.2024.0100>
- [2] Department of Education. (2020, June 26). Official statement on the Good Manners and Right Conduct and Values Education Act. <https://www.deped.gov.ph/2020/06/26/official-statement-on-the-good-manners-and-right-conduct-and-values-education-act/>
- [3] Department of Education. (2023). MATATAG K to 10 curriculum: Makabansa, Grades 1–3. <https://www.deped.gov.ph/matatagcurriculumk147/>
- [4] Devlin, B. L., Jordan, N. C., & Klein, A. (2022). Predicting mathematics achievement from subdomains of early number competence: Differences by grade and achievement level. *Journal of Experimental Child Psychology*, 217, Article 105354. <https://doi.org/10.1016/j.jecp.2021.105354>
- [5] Dolean, D. D., Lervåg, A., Visu-Petra, L., & Melby-Lervåg, M. (2021). Language skills, and not executive functions, predict the development of reading comprehension of early readers: Evidence from an orthographically transparent language. *Reading and Writing*, 34, 1491–1512. <https://doi.org/10.1007/s11145-020-10107-4>
- [6] Khadijah, K., Suciati, I., Khaerani, K., Manaf, A., & Sutamin, S. (2021). Schools' character education values and students' mathematics learning achievement: A meta-analysis. *Jurnal Cakrawala Pendidikan*, 40(3), 670–683. <https://doi.org/10.21831/cp.v40i3.39924>
- [7] Park, A. (2022). Is self-reported optimism a unique predictor of reading and math performance in Latinx elementary school students? *Journal of Character Education*, 18(1), 15–29. <https://doi.org/10.1108/JCED-10-2022-0003>
- [8] Peng, P., Namkung, J., Barnes, M., & Sun, C. (2020). A meta-analysis of mathematics and language: Examining the mutual relations. *Psychological Bulletin*, 146(7), 595–634. <https://doi.org/10.1037/bul0000231>
- [9] Semilla, J.-R. B., Parmisana, V. R., Fajardo, L. L., Abucayon, R. L., Dinoro, A. P., & Tabudlong, J. M. (2023). Innovation in early reading instruction: The development of e-learning materials in mother tongue. *International Journal of Learning, Teaching and Educational Research*, 22(7), 411–433. <https://doi.org/10.26803/ijlter.22.7.22>