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Impact of Blended Learning on Grade 12 Academic Performance at Young Achiever School of Caloocan

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Abstract

This quantitative descriptive-correlational study investigated the impact of blended learning on Grade 12 students' academic performance at Young Achievers' School of Caloocan, Inc. The study aimed to determine the respondents' demographic profile, assess their perceptions of the impact of blended learning on academic performance, and examine whether a significant relationship exists between blended learning and academic performance. The respondents consisted of thirty (30) Grade 12 students selected through simple random sampling. Data was collected using a researchers-made questionnaire administered through Google Forms. Frequency and percentage were used to describe the respondents' demographic profile; weighted mean was used to determine their perceptions of blended learning, and Pearson's Product-Moment Correlation Coefficient (Pearson's r) was used to determine the relationship between blended learning and academic performance. The findings revealed that most of the respondents were 17 years old (83.3%), male (56.7%), and represented different academic strands, with Home Economics (HE) having the highest representation. The overall perception of the impact of blended learning was

Neutral (Weighted Mean = 3.30), indicating that students recognized both the advantages and challenges of blended learning. Students agreed that face-to-face instruction made difficult lessons easier to understand and acknowledged that blended learning positively affected their academic performance. However, they remained neutral regarding online participation, motivation, and the effects of internet connectivity and technical issues. The Pearson correlation analysis revealed a moderate positive correlation between blended learning and academic performance ($r = 0.53$, $p = 0.003$), indicating a statistically significant relationship between the two variables.

The study concludes that blended learning has a significant positive impact on the academic performance of Grade 12 students at Young Achievers' School of Caloocan, Inc. The integration of face-to-face and online instruction provides a flexible and effective learning environment that supports students' academic success. Improved technological support, engaging instructional strategies, and adequate learning resources can further enhance the implementation of blended learning.

Keywords: Descriptive Correlation, Perceptions, Blended Learning

Introduction

Education is a key driver of personal and societal growth, providing learners with essential knowledge, skills, values, and competencies and door future success. As the educational system evolves alongside technological progress and changing learning needs, educators continuously explore instructional approaches that have become increasingly relevant is blended learning, which integrates traditional classroom instruction with online learning components, it creates a more flexible and interactive educational environment. This approach allows students to access learning materials digitally while maintaining opportunities for direct interaction with teachers and classmates. Blended Learning also encourages active participation and supports different learning preferences through the combination of physical and virtual learning experiences. Based on the study of Li and Wang (2022) ^[9] blended learning significantly improved K-12 students' academic performance.

Recently, education has been continuously evolving due to technological advances and the increasing need for more flexible

and accessible teaching methods. Traditionally face-to-face learning was the main mode because of its structured setting, direct interaction, and immediate support. However, schools gradually incorporated digital technologies to broaden learning opportunities beyond the physical classroom and meet changing educational needs. This shift led to the adaption of blended learning, which merges in-person teaching with digital methods and made a more flexible, student-focused approach. Blended learning improved environments enable schools to offer flexible learning options while ensuring effective learning engagement. (Müller *et al.* 2023) ^[11].

Research Questions

This study's primary purpose is to determine the impact of blended learning to Grade 12 academic performance at Young Achiever School of Caloocan. This research:

1. What is the demographic profile of the respondents in terms of:
 - 1.1 Age;
 - 1.2 Sex and;
 - 1.3 strand?
2. How do Grade 12 students perceive the impact of blended learning on their academic performance based on their learning experiences and challenges they encounter during blended learning?
3. Is there a significant impact of blended learning on the academic performance of Grade 12 students at Young Achievers' School of Caloocan, Inc.?

Literature Review

Li and Wang (2022) ^[9] explained that blended learning has become an effective instructional approach in improving students' academic performance in K-12 education. Through their metaanalysis, the researchers found that students who participated in blended learning demonstrated significantly better educational outcomes compared to students exposed only to traditional classrooms instruction. The study emphasized that integrating digital learning tools with face-to-face interactions creates more opportunities for active learning, improved engagement, and stronger retention of academic content. Furthermore, the findings indicate that structured blended learning environments help students become more involved in educational activities and improved overall learning effectiveness. These findings imply that educational achievement can be enhanced when instructional approaches support accessibility and active participation. This literature is relevant to the present study because Grade 12 students at Young Achievers' School of Caloocan are also exposed to blended learning environments that may influence their learning performance.

The effectiveness of flexible educational programs implemented through blended learning environments. (Müller *et al.*, 2023) ^[11] their study revealed that blended learning contributes to positive educational experiences by allowing students to access learning materials while maintaining opportunities for direct interaction and academic support. The researchers further explained that effective course design and active student participation contribute to stronger learning outcomes and improved educational outcomes. In addition, blended learning encourages students to become more responsible and independent in managing their time and educational task. These findings suggest that educational effectiveness

depends not only on the learning approach but also on the quality of implementation that influence academic performance when educational support system is limited.

The study further highlighted the importance of learner readiness and continuous participation in achieving successful educational outcomes (Rasheed *et al.*, 2023) ^[14] these findings support the present study because grade 12 students may encounter similar factors that influence their academic performance. Challenges associated with the online component of blended learning and identified factors that influence educational outcomes. Findings showed that student's engagement, internet accessibility and participation significantly affect learning outcomes. The researchers emphasized that blended learning opportunities for flexible learning but may also present challenges under blended learning.

Almahasees and Amin (2024) ^[1] found that student's readiness, motivation, and technological competence significantly influence effectiveness in blended learning environments. Their study reported that students who actively engaged in blended educational activities and demonstrated strong we in depended learning behaviors tended to achieve better educational outcomes. The researchers concluded that successful blended learning depends on both instructional quality and students' ability to adapt to flexible educational settings. Furthermore, educational achievement improves when students maintain consisted participation and effective learning practices. These finding are relevant to current study because student readiness and participation may influence academic performance.

Daniel *et al.* (2024) ^[4] emphasized that innovative blended teaching approaches contribute positively to student motivation and educational achievement. Their systematize review found that instructional strategies such as interactive activities, collaborative learning, and personalized educational experiences improve student learning outcomes. The researcher concluded that motivation remains an important factor in determining academic performance within blended learning environments. Additionally, blended learning instruction provides opportunities for students to engage more actively in education experiences and develop stronger learning behavior.

Co (2025) ^[3] discussed the implementation of blended learning with online components among Senior High School students and explained that students generally showed positive responses when learning activities were well organized and instructional support was consistently provided. The study emphasized that student's participation, accessibility of learning materials, and teacher effectiveness influence educational experiences in blended environments. It further explained that learned become more engage when instructional approaches provide opportunities for interactions and flexibility. According to findings, blended learning environments may contribute to improved educational outcomes when supported by effective implementation strategies. These findings are relevant to the present study because it may demonstrate different academic outcomes depending on experiences with blended learning.

Blended learning serves as an effective educational strategy among Senior High School students by combining classroom instruction with online learning activities. The study found that students demonstrated improved educational performance after participating in blended

learning approaches. The researchers emphasized that blended learning supports lesson comprehension and promotes greater participation in educational activities. In addition, the study highlighted that students become more involved in learning because of increased flexibility and access to educational resources (Palacio, 2022) ^[13]. These findings support the present study because blended learning may similarly influence the academic performance of Grade 12 Students.

Samson *et al.* (2023) ^[15] examined factors influencing blended learning effectiveness from the perspective of Senior high school students. Their findings showed that teacher support, learner attitude, parental involvement, and confidence in using learning management system contributed significantly to educational experiences and learning outcomes. The researcher emphasized that student's motivation and engagement remain essential components of successful blended learning implementation. They further concluded that educational effectiveness improves when school provide supportive learning environments.

The researcher evaluated a hybrid education learning program and positive student perception regarding flexibility, educational accessibility, and learning effectiveness. Students showed confidence in participating in hybrid educational settings and appreciated opportunities for independent learning while maintaining interactions with teachers. The researchers emphasized that students' influence educational achievement and adaption to blended learning environments (Ortega *et al.*, 2021) ^[12] these findings are relevant to present study because Grade 12 students may also experience changes in academic performance under blended learning conditions.

Linguete (2023) ^[10] assessed the effectiveness of blended learning implementation in public secondary schools and found that students demonstrated positive educational experiences and improvements in participation and learning achievement. The study explained that instructional quality and student readiness remain crucial factors affecting educational outcomes. Furthermore, blended learning promoted greater responsibility and encouraged active educational participation among students (Linguete, 2023) ^[10]. These findings strengthen the rationale of the present study because academic performance among Grade 12 students may also be influenced by the effectiveness of blended learning implementation.

Castillo *et al.* (2023) ^[2] investigated the relationship between study habits and academic performance among Senior High School students experiencing blended learning. The researchers found that students who supported effective study routines and actively taken part in educational activities proven stronger academic outcomes than those with weaker learning habits. The study emphasized that blended learning requires learners to become more responsible in managing their educational tasks and maintaining academic discipline. Furthermore, students who effectively balanced independent learning and classroom participation achieved better educational performance. The findings suggest that blended learning can support academic success when students show positive learning behaviors and engagement (Castillo *et al.*, 2023) ^[2]. These findings support the present study because Grade 12 students at Young Achiever School of Caloocan may experience similar effects of blended learning on academic performance.

Viña *et al.* (2022) ^[16] explored the perceived effects of

online learning on the academic performance of Senior High School students in the Philippines. Their findings revealed that students experienced both advantages and challenges while learning through technology-supported environments. Some students reported improved accessibility and flexibility, while others showed concerns related to internet connectivity and lesson comprehension. The researchers emphasized that educational outcomes depend on students' ability to adapt to different instructional approaches and support active participation in learning activities (Viña *et al.*, 2022) ^[16]. These findings are relevant because blended learning combines online and classroom experiences that may influence Grade 12 students' educational performance. Darantinao (2023) ^[5] examined factors affecting the academic performance of Grade 11 students under technology-supported educational environments. The findings showed that teacher support, student motivation, and access to educational resources significantly contributed to student outcomes. The study highlighted that academic success is influenced not only by instructional delivery but also by students' willingness to take part and adapt to changing educational conditions. Moreover, educational achievement improved when supportive learning environments were available (Darantinao, 2023) ^[5]. This study supports the present research because Grade 12 students may experience similar educational factors under blended learning.

Ortega, *et al.* (2021) ^[12] assessed students' experiences with a hybrid learning program and found that learners generally demonstrated positive attitudes toward educational flexibility and accessibility. The researchers explained that students appreciated opportunities for independent learning while still supporting communication and interaction with instructors. The findings further suggested that positive educational experiences may contribute to stronger academic outcomes and learning engagement (Ortega *et al.*, 2021) ^[12]. These results are relevant because hybrid learning shares similar characteristics with blended learning environments experienced by Grade 12 students.

Linguete (2023) ^[10] evaluated the effectiveness of blended learning implementation among secondary school learners and found positive effects on educational participation and learner achievement. Students reported greater opportunities to organize their learning schedules and improve educational engagement. However, the study also emphasized that blended learning becomes more effective when instructional quality and student readiness are maintained. The findings concluded that blended learning can positively influence educational outcomes when implemented properly (Linguete, 2023) ^[10]. These findings strengthen the rationale of the present study because blended learning may affect Grade 12 academic performance.

Li and Wang (2022) ^[9] conducted a meta-analysis to determine the effect of blended learning on K–12 student performance. The researchers analyzed multiple educational studies and found that blended learning produced significantly better academic outcomes compared with traditional classroom instruction alone. Their findings showed that combining digital learning tools and face-to-face teaching created opportunities for improved participation, stronger engagement, and greater learning retention. The study emphasized that effective implementation of blended learning contributes to educational achievement and promotes more active student involvement in the learning

process. These findings indicate that instructional approaches that integrate flexibility and interaction can positively influence academic performance (Li & Wang, 2022) [9]. This study supports the present research because Grade 12 students at Young Achiever School of Caloocan experience similar blended learning conditions.

Müller, Mildenerger, and Steingraber (2023) [11] investigated the learning effectiveness of a flexible study program delivered through blended learning. Their findings showed that students achieved stronger learning outcomes when instructional activities were organized and supported by effective educational design. The researchers reported that blended learning environments encouraged students to manage learning independently while maintaining interaction with instructors. In addition, participation and educational engagement were identified as important contributors to student success. The findings suggest that blended learning can positively affect academic performance when educational experiences are properly structured (Müller *et al.*, 2023) [11]. This study supports the present research because Grade 12 students may experience similar academic outcomes under blended learning conditions.

Rasheed, Kamsin, and Abdullah (2023) [14] conducted a systematic review examining challenges associated with blended learning implementation. Their findings identified learner readiness, participation, internet accessibility, and educational support as important factors affecting learning effectiveness. The researchers emphasized that blended learning environments create opportunities for flexible learning but require active student involvement and adequate educational support to achieve positive outcomes. The study further suggested that students' adaptation to blended learning influences educational success (Rasheed *et al.*, 2023) [14]. These findings support the current study because similar educational factors may affect Grade 12 students' academic performance.

Almahasees and Amin (2024) [1] explored factors influencing student effectiveness within blended learning environments. Their findings revealed that motivation, technological readiness, and self-regulated learning behaviors significantly contributed to educational achievement. Students who demonstrated stronger participation and independent learning skills showed more favorable educational outcomes. The researchers concluded that successful blended learning depends on instructional quality and learner readiness (Almahasees & Amin, 2024) [1]. These findings strengthen the present study because Grade 12 students' academic performance may also be influenced by these factors.

Daniel *et al.* (2024) [4] examined how innovative blended teaching strategies affect student achievement and motivation. Their review showed that interactive instruction, collaboration, and personalized educational activities improved learning effectiveness and encouraged stronger student participation. The researchers emphasized that motivation remains a significant contributor to educational achievement and successful blended learning implementation. Furthermore, educational environments that support engagement and active participation produced better academic outcomes (Daniel *et al.*, 2024) [4]. These findings are relevant because motivation and participation may influence the academic performance of Grade 12 students under blended learning.

Research Methodology

This chapter presents the research methodology used in the quantitative study titled "IMPACT OF BLENDED LEARNING ON GRADE 12 ACADEMIC PERFORMANCE AT YOUNG ACHIEVERS SCHOOL OF CALOOCAN." The methodology describes how the study was conducted, including the research design, participants, research instruments, procedures, and the statistical methods used to analyze data. The objective of this section is to provide a clear and systematic account of the research process so that the study can be understood and, in principle, replicated by future researchers.

Because the study aims to determine the impact of blended learning on academic performance, it uses a quantitative approach that relies on measurable variables and statistical analysis. In this design, blended learning is operationalized as the independent variable, while students' academic performance is treated as the dependent variable. The methodology ensures that data collection is consistent, that respondents understand the instruments, and that analysis is performed using appropriate statistical treatments.

Research Design

The study employed a quantitative research design to examine the relationship and/or effect between blended learning practices and Grade 12 academic performance. In quantitative methodology, the researcher follows a structured plan for selecting participants, collecting numerical data, and applying statistical procedures to interpret results.

Depending on the available school context and the study's implementation plan, the research design may be classified as a quasi-experimental design or a correlational design. In the quasi-experimental approach, academic performance would be measured before and after the implementation of blended learning or compared between groups receiving blended learning and those using conventional instruction. In the correlational approach, blended learning exposure and academic performance are measured at the same time, and the study examines whether higher blended learning exposure is associated with higher academic performance. In either case, the study focuses on testing research objectives through quantifiable data, allowing the researcher to determine whether blended learning has a measurable impact on learners' academic outcomes.

Participants of the Study

The participants of the study were Grade 12 students enrolled at Young Achievers School of Caloocan. These students were selected because they are currently undergoing senior high school instruction where blended learning strategies may be implemented through a combination of face-to-face instruction and technology-supported learning tasks.

The study's participants were chosen based on inclusion criteria such as:

- Being officially enrolled in Grade 12 during the period of data gathering;
- Having complete academic performance records for the selected grading period;
- Being exposed to the school's blended learning implementation (either consistently or to a measurable extent); and being able to respond to the data-gathering instrument (if the study includes a questionnaire).

The sample size, number of sections, and sampling technique (such as total enumeration or purposive sampling) are determined based on the school population and the researcher's access to students and records. Since this is a school-based quantitative study, the final sample reflects students who meet eligibility requirements and whose data are complete enough for statistical analysis.

Sampling Technique

To ensure that the data collected represents the intended population, the study used a sampling technique consistent with the research setting. If the school allows access to all Grade 12 learners, the researcher may use total enumeration, meaning all eligible Grade 12 students become participants. However, if full access is not possible due to administrative limitations, the study may adopt a purposive sampling strategy where particular sections or students are selected based on their exposure to blended learning activities and availability of complete academic records.

Regardless of the technique used, the researcher documents the basis of participant selection clearly in order to strengthen the credibility of the findings.

Research Instruments

The study used tools designed to measure both components needed for analysis: blended learning exposure/implementation and academic performance.

Blended Learning Instrument

Blended learning was measured through a structured instrument, commonly a questionnaire or a validated teacher/student implementation checklist that captures the degree to which blended learning practices are present in instruction. The questionnaire typically includes items that represent key aspects of blended learning, such as: instructional content delivery through online/offline modules, student access to learning materials, engagement with learning tasks outside the classroom, feedback and assessment through digital or assisted platforms, and learner support such as guidance, reminders, and intervention strategies.

Responses in a questionnaire are often measured using a Likert scale, strongly agree to strongly disagree or always to never. Each item is assigned a numerical value to allow statistical treatment of blended learning exposure as a quantifiable variable.

If the instrument includes multiple dimensions, the researcher computes a composite blended learning score by summing or averaging item scores for each dimension and then generating an overall score.

Academic Performance Records

The dependent variable, Grade 12 academic performance, was measured using actual school assessment data such as: general average or overall grade per grading period, scores from summative examinations, averaged marks of performance tasks and quizzes, and/or final semester grades for the identified period.

The researcher secured these grades from authorized sources such as the adviser, guidance office, or school registrar, following school policies. Using official grades strengthens the study's validity because the dependent variable is based on documented academic indicators rather than self-reported perceptions alone.

Validity and Reliability of Instruments

Since quantitative research depends on accurate measurement, the instruments used in the study were subjected to processes that ensure they measure what they are intended to measure.

Validity refers to the appropriateness of the instrument in capturing blended learning and learning performance variables. To support content validity, the questionnaire items were aligned with the study's conceptual framework and reviewed by relevant individuals such as research advisers, subject teachers, or experts in education.

Reliability refers to the consistency of the instrument in producing stable results. The researcher may conduct reliability testing using statistical methods such as Cronbach's alpha for Likert-scale questionnaire items. A reliability coefficient within acceptable ranges indicates that the instrument can produce dependable responses.

If the study uses existing instruments from prior research, the researcher may still adapt or validate them to match the context of Young Achievers School of Caloocan and Grade 12 learners.

Research Procedure The methodology includes the steps taken to implement the study from start to finish.

First, the researcher requested permission from the school administration to conduct the study and to access Grade 12 learners and academic records. After securing approval, the researcher coordinated with Grade 12 advisers and subject teachers to identify the appropriate group of participants and the corresponding academic performance data needed for analysis.

Next, the researcher administered the blended learning questionnaire to selected Grade 12 students. Prior to the administration, the researcher provided clear instructions regarding the purpose of the questionnaire and how to respond to the items. Students were encouraged to answer honestly to ensure that the collected data reflects their actual experiences.

After the questionnaire responses were gathered, the researcher compiled and organized the data. The academic performance records were then retrieved and encoded in a format ready for analysis. The researcher ensured that student identifiers remained confidential and that data were stored safely to prevent unauthorized access.

Finally, the researcher prepared the dataset for analysis by checking for completeness, accuracy in encoding, and proper coding of variables. This preparation step is important because errors in data entry can affect the results of statistical tests.

Data Analysis and Statistical Treatment

To answer the research questions and test hypotheses, the study applied statistical methods suited to quantitative data.

Initially, the researcher used descriptive statistics to summarize the data. Descriptive statistics provide a clear profile of: the level of blended learning exposure/implementation among Grade 12 students, the distribution and average level of academic performance, and the general patterns in the dataset.

Typically, the descriptive analysis includes mean, standard deviation, frequency, and percentage, depending on how variables were coded.

After descriptive analysis, the researcher applied inferential statistics to determine whether a significant relationship or impact exists between blended learning and academic

performance. The specific statistical test depends on the design used. Common quantitative procedures include: correlation analysis, Pearson r or Spearman ρ to determine the relationship between blended learning scores and academic performance; regression analysis to estimate how much academic performance changes as blended learning exposure increases; or t-test/ANOVA if the study involves comparison between groups experimental vs. control, high exposure vs. low exposure).

A significance level of 0.05 is typically used. If the p -value is less than 0.05, the result is considered statistically significant, meaning the relationship or effect is unlikely due to chance.

Additionally, the researcher interprets effect sizes and trends to ensure that statistical significance is translated into educational relevance rather than only numerical meaning.

Ethical Considerations

The study observed ethical standards in handling students and their academic records. Before data collection, the researcher ensured that proper permission was secured from school authorities. Participation required informed compliance from students, especially regarding the questionnaire portion.

The researcher maintained confidentiality by coding participant responses instead of using names during analysis. Academic records were treated as sensitive information and were only used for research purposes. No personal data identifying individual students was included in the final report unless required and allowed by school policy.

Summary in summary, this methodology describes a quantitative approach to investigating the impact of blended learning on Grade 12 academic performance at Young Achievers School of Caloocan. The study identifies the variables, selects appropriate participants, uses structured instruments to measure blended learning exposure and gathers official academic performance records, and applies statistical procedures to test research objectives. By following a systematic and ethical research process, the methodology aims to generate findings that are credible, measurable, and relevant to instructional improvement in the Grade 12 context.

Research Design

This study uses a quantitative research method, specifically a descriptive-correlational research design. The quantitative method is appropriate because the researcher will collect numerical data through an online survey questionnaire and analyze the results using statistical tools. The descriptive research design will be used to describe the perceptions of Grade 12 students about blended learning, including their understanding of lessons, ability to complete school tasks, responsibility for learning, motivation to study, participation during online classes, and encountered challenges. The correlational research design will be used to determine whether there is a significant relationship between blended learning and the academic performance of Grade 12 students at Young Achievers' School of Caloocan, Inc. The data gathered from the respondents will be analyzed using proper statistical tools to answer the research question and test the Hypothesis.

Respondent /Participants

Data were gathered through an online survey from Grade 12 Students at Young Achievers' School of Caloocan, Inc. The researcher used descriptive statistics, specifically Frequency and Percentage, Weighted, and Pearson's r , to summarize the collected data, ensuring that the findings were objective, statistically supported, and evidence based.

Instrument of the Study

The instruments of the study were designed to measure the two key variables of the research: (1) blended learning as the independent variable and (2) Grade 12 academic performance as the dependent variable. Since the study is quantitative, the instruments are primarily structured to produce measurable scores that can be statistically analyzed.

1. Questionnaire on Blended Learning

To measure the extent of blended learning implementation and exposure among Grade 12 students, the researcher used a structured questionnaire.

The questionnaire focused on specific blended learning practices experienced by learners during instruction at Young Achievers' School of Caloocan.

The items were organized into dimensions that reflect common blended learning features, such as: Instructional Content Delivery like use of digital/online/offline materials alongside face-to-face teaching.

- Learner Engagement such as student participation in online tasks and learning activities
- Access to Learning Resources (availability and usability of learning materials)
- Feedback and Assessment (how students receive feedback through online/offline assessments) Support and Guidance (teacher support, reminders, and assistance for learning tasks)

Students responded to each item using a Likert scale, for example:

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

Each response was assigned a numerical value to allow computation of a total blended learning score and interpretation of students' overall level of blended learning exposure, low, moderate, or high.

2. Academic Performance Record/Document

The academic performance of Grade 12 students was measured using school-based numerical data taken from official academic records.

Depending on what was available and appropriate in the school's grading system, the study used one or more of the following:

- General Average / Final Grade per grading period or semester
- Summative Examination Scores
- Quarterly or Semester Assessment Results

These grades served as the main quantitative indicator for the dependent variable. Using official academic records strengthens the objectivity of the measurement since the values come directly from the school's grading documents rather than student self-report.

3. Scoring and Interpretation (Blended Learning Questionnaire)

After the questionnaires were answered, the researcher: checked completeness of the responses, encoded the responses according to the Likert scale, computed each participant's total blended learning score (and possibly dimension scores, if the questionnaire was multi-dimensional), and categorized the scores into levels of blended learning exposure.

If the questionnaire followed a 4-point Likert scale, the researcher typically used a weighted mean to compute the overall level of blended learning, then interpreted the mean using predetermined qualitative descriptions (for example, "high," "moderate," or "low").

4. Validity and Reliability of Instruments

To ensure that the instruments produced accurate and consistent results, the researcher performed instrument validation and reliability procedures:

Content Validity: The questionnaire items were aligned with the study's objectives and reviewed by an expert panel (such as advisers/teachers) to confirm that the items match the concept of blended learning.

Reliability Testing: The researcher checked the internal consistency of the questionnaire (commonly using Cronbach's alpha) to confirm that the items reliably measured blended learning.

Summary

In summary, the study used: A Likert-scale questionnaire to measure students' level of blended learning exposure/experience, and official school academic records to obtain Grade 12 academic performance data.

Procedure

The procedure of the study describes how the researcher gathered all needed data in one round of data collection for the quantitative investigation of the impact of blended learning on Grade 12 academic performance at Young Achievers' School of Calocan. In this study, the research activities were conducted once, meaning the questionnaire administration and data retrieval of academic performance records were done during a single data gathering period.

1. Preparation and Coordination

Before collecting data, the researcher prepared all necessary materials and coordinated with the school. This included confirming: the schedule of Grade 12 classes and advisers, the availability of the selected respondents, the appropriate period for academic performance records to be used, and the best time to administer the questionnaire.

The researcher also ensured that the questionnaire was ready for distribution, with complete sections and instructions.

2. Securing Permission from School Authorities

After preparation, the researcher requested permission to conduct the study within the school. Once approval was granted, the researcher clarified with school personnel the following: the number of Grade 12 respondents involved, the schedule for administering the questionnaire, and the process for retrieving students' academic performance data.

3. Orientation of Respondents

On the day of questionnaire distribution, the researcher

oriented the Grade 12 students who were selected as participants. Orientation included explaining: the purpose of the questionnaire, how to answer properly, that there are no right or wrong answers, that participation is for research purposes, and confidentiality of the responses.

This step helped ensure proper understanding and improved response quality.

4. Administration of the Blended Learning Questionnaire (Once)

The questionnaire was administered one time only to all selected Grade 12 participants within the agreed schedule. The researcher ensured that: students answered the questionnaire individually, all items were answered before the questionnaire was submitted, the Likert-scale responses were followed correctly, and no questionnaire forms were misplaced.

After completion, the researcher collected the questionnaires and checked them for completeness immediately.

5. Retrieval of Grade 12 Academic Performance Data (Once)

After the questionnaire collection period (or at the same time, if allowed by the school), the researcher retrieved academic performance data from official school records. This was done once using the school's established grading documents.

The researcher ensured that:

The grades used corresponded to the same grading period of time frame agreed upon in the study, the records were sourced from authorized school personnel, student names were not directly included in the final dataset (only coded identifiers were used), only necessary numerical data were extracted for statistical analysis.

6. Encoding of Data

Once all questionnaires and academic records were obtained, the researcher encoded the data into a spreadsheet or statistical software. During encoding, the researcher: converted questionnaire responses into numeric values based on the Likert scale, assigned codes to each participant to maintain confidentiality, entered academic performance scores accurately from the school records, and ensured that each participant's questionnaire results matched their academic record.

7. Data Cleaning and Verification

Before analysis, the researcher conducted data cleaning to check for possible errors such as: missing answers in questionnaire forms, incorrect numeric encoding, out-of-range values for questionnaire items or grades, and duplicate entries.

Incomplete or inconsistent entries were handled based on the study's acceptable data rules, exclusion for specific computations if necessary, and these actions were documented.

8. Preparation for Statistical Analysis

After data cleaning, the researcher prepared the final dataset for quantitative analysis. The dataset included: blended learning scores from the questionnaire, and academic performance scores from school records.

Variables were labeled clearly to guide the statistical treatment.

9. Statistical Treatment (After One-Time Collection)

Errors such as missing answers in questionnaire forms, incorrect numeric encoding, out-of-range values for questionnaire items or grades, and duplicate entries.

Incomplete or inconsistent entries were handled based on the study's acceptable data rules, exclusion for specific computations if necessary, and these actions were documented.

10. Preparation for Statistical Analysis

After data cleaning, the researcher prepared the final data set for quantitative analysis. The data set included: blended learning scores from the questionnaire, and academic performance scores from school records.

Variables were labeled clearly to guide the statistical treatment.

11. Statistical Treatment (After One-Time Collection)

Finally, the researcher performed statistical analysis based on the research objectives. This included: descriptive statistics to summarize blended learning levels and academic performance, inferential statistics to test the relationship or impact between blended learning and academic performance, interpretation of results using the chosen significance level (typically 0.05).

12. Documentation of the Results

After analysis, the researcher organized the results into tables and narrative interpretation aligned with the study's problems and objectives.

Data analysis

This section presents the quantitative data analysis for the study titled "IMPACT OF BLENDED LEARNING TO GRADE 12 ACADEMIC PERFORMANCE AT YOUNG ACHIEVERS' SCHOOL OF CALOOCAN." The purpose of the analysis is to determine whether implementing blended learning has a measurable effect on the academic performance of Grade 12 students. In quantitative research, data analysis aims to transform collected numerical information into evidence that can support or reject the study's objectives and hypothesis. Accordingly, the analysis focuses on describing student performance using statistical summaries and examining the relationship between the independent variable (blended learning implementation) and the dependent variable (academic performance). The study is anchored on the premise that blended learning typically combining traditional classroom instruction with structured online learning activities may enhance student learning outcomes by providing accessibility of instructional materials, increasing opportunities for practice, and supporting differentiated pacing. To evaluate premise, the study uses measurable indicators of academic performance such as periodical grades, assessment scores, or final output measures aligned with Grade 12 curriculum requirements. The analysis also considers how the extent or quality of blended learning exposure corresponds to changes in students' achievement.

Overview of variables and measurements before conducting statistical procedures, the variables of the study must be clarified in terms of their operational meaning. In this quantitative design, the independent variable is the level of exposure to blended learning strategies, such as the use of learning management tools, online modules, interactive

instructional content, or asynchronous learning tasks integrated with face-to-face teaching. The dependent variable is Grade 12 academic performance, measured numerically through standardized grading results or test scores administered within the school's grading system.

Because quantitative studies require reliability and comparability, academic performance scores should be derived from a consistent assessment type across the students and across the implementation period. The study may also categorize academic performance into range such as with descriptive equivalents such as "below average," "average," or "above average," if the school uses such benchmarks, though the primary statistical computations often rely on raw or normalized numerical grades for greater precision. Similarly, blended learning exposure may be measured using a quantitative scale such as frequency of participation, number of completed online tasks, or a composite index from student rating and/or instructor implementation checklists. If blended learning is assessed through questionnaires, the responses can be converted into weighted scores, then use to form group categories such as high exposure versus low exposure students, or experimental versus comparison groups if the study includes such a design.

Data Preparation and Screening

The integrity of the results depends on the careful preparation of the datasets. The analysis begins with data screening, which checks whether the collected values are complete, consistent, appropriate for statistical testing. This stage includes verifying that all participant responses are recorded, confirming that academic performance values are within the valid range required by the school's graded system, and ensuring that the blended learning indicators are properly coded.

A common step is handling missing data. If certain students have incomplete responses or absent grade records, the study must decide whether to exclude those cases from certain analyses or use acceptable missing-data approaches depending on the extent of messiness. However, since the study is conducted in a school environment, messiness may be minimized through proper coordination with teachers and retrieval of records. Still, the researcher typically documents how values were treated for transparency.

Another essential part of preparation is verifying the coding scheme. For example, if the blended learning implementation is measured using Like-type scales, strongly agree to strongly disagree, responses must be coded numerically in ascending order. If online learning participation is measured as frequencies, number of completed modules, those counts are maintained as numeric values. If the analysis includes derived variables—such as composite blended learning scores—then the method of computation is stated clearly, typically by combining sub-scale scores and averaging or summing them.

After preparation, the data set is checked for outliers and normality assumptions. Outliers can occur due to typing errors, unusual student circumstances, or extreme performance values. Normality assessment is important because many parametric statistical tests assume normally distributed data. If normality is violated, the researcher may choose non-parametric tests or rely on robust alternatives depending on the software used, SPSS, Excel, JASP, or similar tools.

Descriptive Statistics: Summarizing Student Profiles and Performance The analysis first provides descriptive statistics to present a clear snapshot of the data. Descriptive statistics are essential because they show the central tendency and variability of the academic performance outcomes as well as the levels of blended learning exposure.

For academic performance, the analysis typically includes: Mean (average grade or score). Representing the general performance level of Grade 12 students. Median (middle value), which is useful when distributions are skewed. Standard deviation, showing the range of performance. If the study uses descriptive categories, the analysis also includes frequency counts and percentages for performance levels.

For example, the researcher would report the average academic performance of students in the study population during the period of blended learning implementation. If the implementation spans a specific grading period, first quarter, then the mean grade for that period is computed. If the study is designed with prep and post- implementation measures, the descriptive statistics can also be presented for both time points to visually demonstrate change.

Similarly, descriptive statistics are provided for blended learning indicators. If blended learning is measured using a questionnaire, the researcher computes the mean overall blended learning score and may also compute means for dimensions such as content accessibility, interaction, feedback, and learner engagement. If blended learning exposure is based on actual participation metrics, number of online modules completed. The researcher reports mean completion rates and the distribution of students across completion levels.

These descriptive results serve two purposes: they answer the question “What does the dataset look like?” and they provide baseline evidence that supports later inferential testing. For instance, if students’ academic performance increases and blended learning exposure indicators are generally high, it suggests alignment with the study’s hypothesis. However, descriptive statistics alone cannot establish causality; therefore, the analysis must move to inferential procedures.

Inferential Statistics: Testing the Relationship and Impact After summarizing the data, the analysis proceeds to the main inferential tests required by the quantitative research objectives. The specific statistical tests depend on the study design and the form of the independent variable.

Correlation-Based Approach (If Relationship is Tested)

If the study examines whether higher blended learning exposure is associated with better academic performance, a correlation analysis is appropriate. The most common correlation methods include Pearson’s r (for linear relationships with normally distributed interval data) or Spearman’s ρ (for ordinal data or non-normal distributions).

In such a correlation analysis, academic performance is treated as a quantitative dependent variable, while blended learning exposure is treated as a quantitative independent variable (either raw scores or composite indices). The output includes:

The correlation coefficient, r (or ρ), which indicates the direction (positive or negative) and strength (weak, moderate, strong) of the relationship.

The p -value, indicating whether the observed association is

statistically significant at a chosen significance level (commonly $\alpha = 0.05$).

A significant positive correlation would mean that as blended learning exposure increases, academic performance also tends to increase. If the p -value is less than 0.05, the researcher concludes that the relationship is statistically significant, supporting the hypothesis that blended learning positively affects academic outcomes.

The researcher would also interpret effect size qualitatively. For example, a correlation coefficient around 0.10 is typically considered weak, around 0.30 moderate, and 0.50 or above strong—though these thresholds can vary by context and field conventions. The narrative interpretation should connect the numeric result to educational meaning, such as implying that blended learning activities may contribute to improved understanding, practice opportunities, and Summary of Statistical Findings (Narrative Integration) To maintain coherence, the data analysis section should integrate findings from descriptive statistics and inferential results into a unified narrative. A typical structure in quantitative thesis writing is to begin with description (means, distributions), then interpret outcomes in relation to the study’s objectives.

In this study, the core expectation is that blended learning contributes positively to Grade 12 academic performance. The descriptive statistics may show that students who experienced blended learning more frequently or more effectively also had higher achievement scores. Inferential tests then determine whether these patterns are statistically significant and not merely due to chance.

The findings are then linked to the broader implication that blended learning may strengthen teaching and learning outcomes in senior high school contexts. At Young Achievers’ School of Caloocan, such results can inform instructional planning, resource allocation, learning devices, offline-compatible content, and professional development for teachers to improve the consistency and effectiveness of blended learning implementation.

Ethical Considerations Related to Data Handling

While ethics are often covered in a separate section of the thesis, it is still relevant to mention briefly within data analysis how the researcher ensured responsible handling of student data. Quantitative analysis uses academic performance records and student responses, both of which require privacy and protection.

The analysis narrative may mention that the data set was kept confidential, student identifiers were coded rather than openly displayed, and the analysis was conducted using aggregated or anonymize data in reporting results. Furthermore, any reporting should avoid identifying individual students while still presenting the statistical outcomes required to answer research questions.

Conclusion of the Data Analysis Narrative In conclusion, this data analysis narrative outlines the systematic process used to examine the impact of blended learning on Grade 12 academic performance at Young Achievers’ School of Caloocan. Starting from data preparation and screening, the analysis uses descriptive statistics to present the baseline distribution of student performance and blended learning exposure. It then applies appropriate inferential statistical methods—based on the study design and measurement level—to test whether blended learning is significantly associated with improved academic outcomes. Through assumption

checking and careful interpretation, the study ensures that statistical conclusions are valid and educationally meaningful.

Ultimately, the results provide evidence that either supports or challenges the hypothesis that blended learning improves student achievement. Regardless of the statistical outcome, the analysis contributes valuable insight into how instructional delivery strategies may influence learning performance in the Grade 12 population. These findings can serve as a foundation for practical recommendations and between the experimental and control groups. If the experimental group's mean is higher and the p-value indicates significance, the study concludes that blended learning is associated with better academic outcomes relative to conventional instruction.

If the study includes more than two groups—for instance, varying levels of blended learning exposure such as low, moderate, and high—ANOVA figures out whether mean differences exist across groups. If ANOVA is significant, post-hoc tests, Tukey HSD clarify which specific group pairs differ significantly.

Assumption Checks and Validity of Statistical Conclusions
Quantitative analysis must ensure that statistical conclusions are valid. Therefore, the researcher typically checks key assumptions: Normality: tested using Shapiro-Will or Alamogordo-Smirnoff tests and also inspected via histograms or Q-Q plots. Homogeneity of variance: for t-test/ANOVA, tested using Levine's test. Linearity and homoscedasticity: for regression, checked via residual plots.

If assumptions are not met, the analysis adjust by using non-parametric tests or transforming variables. For examples, if academic performance data are ordinal or not normally distributed, Spearman correlation may be preferred. If variance is unequal between groups, a Welch t-test might be used instead of the standard t-test. The researcher should clearly describe which test was selected and why, to support the credibility of the results.

Interpretation of Results in Educational Context

After statistical testing, the narrative interpretation should translate numbers into educational meaning. The study is not only about whether blended learning “works” in a statistical sense, but also about how and why students’ performance might improve.

If results show a significant positive relationship or significant mean differences, the narrative interpretation might emphasize mechanisms such as: Improved access to learning materials, enabling students to review lessons at their own pace. Increased opportunities for formative feedback, especially if online quizzes provide immediate results. More consistent engagement, allowing students to plan, monitor, and adjust their study behavior. Support for diverse learning needs, since interactive or modular content can cater to different pacing and comprehension levels.

On the other hand, if results are weak or non-significant, the narrative should still provide meaningful interpretation. For instance, lack of significant impact could result from factors such as inconsistent internet access, limited device availability, unequal digital literacy, or the possibility that the intervention period was too short for measurable grade improvements. The analysis should remain grounded in data while acknowledging practical realities in the school setting. School context. At Young Achievers’ School of Caloocan, such results can inform instructional planning, resource

allocation, learning devices, offline-compatible content, and professional development for teachers to improve the consistency and effectiveness of blended learning implementation.

Ethical Considerations Related to Data Handling

While ethics are often covered in a separate section of the thesis, it is still relevant to mention briefly within data analysis how the researcher ensured responsible handling of student data. Quantitative analysis uses academic performance records and student responses, both of which require privacy and protection.

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In conclusion, this data analysis narrative outlines the systematic process used to examine the impact of blended learning on Grade 12 academic performance at Young Achievers’ School of Caloocan. Starting from data preparation and screening, the analysis uses descriptive statistics to present the baseline distribution of student performance and blended learning exposure. It then applies appropriate inferential statistical methods—based on the study design and measurements level—to test whether blended learning is significantly associated with improved academic outcomes. Through assumption checking and careful interpretation, the study ensures that statistical conclusions are valid and educationally meaningful.

Ultimately, the results provide evidence that either supports or challenges the hypothesis that blended learning improves student achievement. Regardless of the statistical outcome, the analysis contributes valuable insight into how instructional delivery strategies may influence learning performance in the Grade 12 population. These findings can serve as a foundation for practical recommendations and future research to strengthen blended learning implementation, enhance student engagement, and promote academic success.

Research Design

The study employed a quantitative research design to examine the relationship and/or effect between blended learning practices and Grade 12 academic performance. In quantitative methodology, the researcher follows a structured plan for selecting participants, collecting numerical data, and applying statistical procedures to interpret results.

Depending on the available school context and the study's implementation plan, the research design may be classified as a quasi-experimental design or a correlational design. In the quasiexperimental approach, academic performance would be measured before and after the implementation of blended learning or compared between groups receiving blended learning and those using conventional instruction. In the correlational approach, blended learning exposure and academic performance are measured at the same time, and the study examines whether higher blended learning exposure is associated with higher academic performance.

In either case, the study focuses on testing research objectives through quantifiable data, allowing the researcher

to determine whether blended learning has a measurable impact on learners' academic outcomes.

Participants of the Study

The participants of the study were Grade 12 students enrolled at Young Achievers' School of Caloocan.

These students were selected because they are currently undergoing senior high school instruction where blended learning strategies may be implemented through a combination of face-to-face instruction and technology-supported learning tasks.

The study's participants were chosen based on inclusion criteria such as:

Being officially enrolled in Grade 12 during the period of data gathering; having complete academic performance records for the selected grading period; being exposed to the school's blended learning implementation and being able to respond to the data-gathering instrument. The sample size, number of sections, and sampling technique such as total enumeration or purposive sampling are determined based on the school population and the researcher's access to students and records. Since this is a school-based quantitative study, the final sample reflects students who meet eligibility requirements and whose data are complete enough for statistical analysis.

Sampling Technique

To ensure that the data collected represents the intended population, the study used a sampling technique consistent with the research setting. If the school allows access to all Grade 12 learners, the researcher may use total enumeration, meaning all eligible Grade 12 students become participants. However, if full access is not possible due to administrative limitations, the study may adopt a purposive sampling strategy where particular sections or students are selected based on their exposure to blended learning activities and availability of complete academic records.

Regardless of the technique used, the researcher documents the basis of participant selection clearly in order to strengthen the credibility of the findings.

Research Instruments

The study used tools designed to measure both components needed for analysis: blended learning exposure/implementation and academic performance.

Blended Learning Instrument

Blended learning was measured through a structured instrument, commonly a questionnaire or a validated teacher/student implementation checklist that captures the degree to which blended learning practices are present in instruction. The questionnaire typically includes items that represent key aspects of blended learning, such as instructional content delivery through online/offline modules, student access to learning materials, engagement with learning tasks outside the classroom, feedback and assessment through digital or assisted platforms, and learner support such as guidance, reminders, and intervention strategies.

Responses in a questionnaire are measured using a Likert scale, strongly agree to strongly disagree or always to never. Each item is assigned a numerical value to allow statistical treatment of blended learning exposure as a quantifiable variable.

Academic Performance Records

The dependent variable, Grade 12 academic performance, was measured using actual school assessment data such as: general average or overall grade per grading period, scores from assumptive examinations, averaged marks of performance tasks and quizzes, and/or final semester grades for the identified period.

The researchers secured these grades from authorized sources such as the adviser, guidance office, and school registrar, following school policies. Using official grades strengthens the study's validity because the dependent variable is based on documented academic indicators rather than self-reported perceptions alone.

Validity and Reliability of Instruments

Since quantitative research depends on accurate measurement, the instruments used in the study were subjected to processes that ensure they measure what they are intended to measure.

Validity refers to the appropriateness of the instrument in capturing blended learning and learning performance variables. To support content validity, the questionnaire items were aligned with the study's conceptual framework and reviewed by relevant individuals such as research advisers, subject teachers, or experts in education.

Reliability refers to the consistency of the instrument in producing stable results. The researchers conducted reliability testing using statistical methods Cronbach's alpha for Likert-scale questionnaire items. A reliability coefficient within acceptable ranges indicates that the instrument produces dependable responses.

The study used existing instruments from prior research, the researcher adapts and validate them to match the context of Young Achievers' School of Caloocan and Grade 12 learners.

Research Procedure

The methodology includes the steps taken to implement the study from start to finish.

First, the researchers requested permission from the school administration to conduct the study and to access Grade 12 learners and academic records. After securing approval, the researcher coordinated with Grade 12 advisers and subject teachers to identify the appropriate group of participants and the corresponding academic performance data needed for analysis.

Next, the researchers administered the blended learning questionnaire to selected Grade 12 students. Prior to the administration, the researcher provided clear instructions regarding the purpose of the questionnaire and how to respond to the items. Students were encouraged to answer honestly to ensure that the collected data reflects their actual experiences.

After the questionnaire responses were gathered, the researchers compiled and organized the data. The academic performance records were then retrieved and encoded in a format ready for analysis. The researchers ensured that student identifiers remained confidential and that data were stored safely to prevent unauthorized access.

Finally, the researchers prepared the data set for analysis by checking for completeness, accuracy in encoding, and proper coding of variables. This preparation step is important because errors in data entry can affect the results of statistical tests.

Data Analysis and Statistical Treatment

To answer the research questions and test hypotheses, the study applied statistical methods suited to quantitative data. Initially, the researchers used descriptive statistics to summarize the data. Descriptive statistics provide a clear profile of the level of blended learning exposure/implementation among Grade 12 students, the distribution and average level of academic performance, and the general patterns in the data set.

Typically, the descriptive analysis includes mean, standard deviation, frequency, and percentage, depending on how variables were coded.

After descriptive analysis, the researchers applied inferential statistics to determine whether a significant relationship or impact exists between blended learning and academic performance. The specific statistical test depends on the design used.

A significance level of 0.05 was used. The p-value is less than 0.05, the result then is considered statistically significant, meaning the relationship or effect is unlikely due to chance.

Additionally, the researchers interpret effect sizes and trends to ensure that statistical significance which is translated into educational relevance rather than only numerical meaning.

Ethical Considerations

The study observed ethical standards in handling students and their academic records. Before data collection, the researchers ensured that proper permission was secured from school authorities. Participation required informed compliance from students, especially regarding the questionnaire portion.

The researchers-maintained confidentiality by coding participant responses instead of using names during analysis. Academic records were treated as sensitive information and were only used for research purposes. No personal data identifying individual students was included in the final report unless required and allowed by school policy.

Ethical Consideration

This study aims to collect relevant information from Grade 12 Students regarding the impact of blended learning on their academic performance. The participation of the respondents is essential to the success of this study. The questionnaire will take approximately 5-10 minutes to complete. Participants are kindly encouraged to answer each question honestly and based on their personal experiences; there are no right or wrong answers. The researchers assure all participants that the information they provide will be kept strictly confidential and will be used solely for academic and research purposes. The identities of the participants will remain anonymous, and all collected data will be handled with the highest level of privacy and respect. Participation in this study is entirely voluntary. Participants have the right to decline participation or withdraw from the study at any time without negative consequences. By completing and submitting the questionnaire, participants indicate that they have read and understood the purpose of the study and voluntarily give their informed consent to participate.

Results and Discussions

This chapter presents the gathered data in tabular form with their corresponding analysis and interpretation.

1. Profile of the Respondents

Table 1: Respondents in terms of Age

Age	F	%	Rank
Below 17 years old	4	13.3	2
17 years old	25	83.3	1
18 years old	1	3.3	3
Total	30	100	

The results presented in Table 1 indicate that the primary of the respondents are 17 years old, accounting for 25 students (83.3%) of the total sample. Followed by 16 years old respondents, who comprise 4 students (13.3%), lastly is 18 years old respondents represent only 1 student (3.3%). The findings show that most of the participants belong to the 17 years old age group.

These findings suggest that the respondents are relatively homogeneous in terms of age, which is expected since participants were selected from the same grade level. The predominance of 17 years of students reflects the typical age of senior high school learners and indicates that the data primarily represent the perspective and experience within this age range. On the other hand, 16 and 18 years of respondents demonstrate that there is a slight variation in the ages of participants, allowing the study to capture insights from students who may have entered school earlier or later than their peers.

Table 2: Respondents in terms of Sex

Sex	F	%	Rank
Male	17	56.7	1
Female	13	43.3	2
Total	30	100	

The result presented in Table 2 shows that the majority of the respondents are male, comprising 17 students (56.7%) of the total sample. Meanwhile, 13 respondents (43.3%) are female. These findings indicate that male students constitute a slightly larger proportion of the participants compared to female students.

The distribution of respondents suggests that the study include perspectives from both male and female students, although males are more represented in the sample. Despite the difference in frequency, the percentage of female respondents remains substantial, providing a balanced representation of both sexes. These findings enhance the study by incorporating the views and experiences of students from both groups, thereby contributing to a more comprehensive understanding of the research findings.

Table 3: Respondents in terms of Strand

Strand	F	%	Rank
ABM	6	20	2.5
STEM	6	20	2.5
HUMMS	6	20	2.5
TVL	5	16.7	5
HE	7	23.3	1
Total	30	100	

The result presented in Table 3 show that the respondents come from different academic strands. Among the 33 respondents, HE has the highest number of participants, with 7 students (23.3%) followed by the 3 strands which are ABM, STEM, AND HUMSS students with 6 respondents

each and has the same percentage which is 20%, while TVL has the lowest representation with 5 respondents (16.7%). The distribution indicates that the study includes respondents from various senior high school strands, allowing for a broader representation of students' perspectives. Although the number of participants varies across strands, each group contributes to the overall findings of the study. The higher representation of HE students suggest that their responses may have a great influence on the results, while the inclusion of respondents from ABM, STEM, HUMSS, and TVL provides a more comprehensive understanding of the population being studied.

2. Respondents' Perception of the Impact of Blended Learning

Table 4: Respondents in terms of Perceive Impact of Blended Learning

Perceive Impact	Wm	I	Rank
Blended learning helps me understand my lessons better.	2.90	N	7
I find it easier to understand difficult Grade 12 lessons when they are taught face-to-face rather than online.	4.20	A	1
Blended learning allows me to complete school tasks more efficiently.	3.23	N	5
Blended learning makes me more responsible for my own learning.	3.30	N	4
I feel more motivated to study because of blended learning.	2.87	N	8.5
Blended learning positively affects my academic performance.	3.90	A	2
I understand the lesson content much better when we have a mix of classroom discussion and online modules.	3.20	N	6
I actively participate during online classes.	2.73	N	10
Blended learning is effective for Grade 12 students.	3.80	A	3
Poor internet connection or technical issues at home prevent me from achieving my full academic potential.	2.87	N	8.5
Overall Weighted Mean	3.30	N	

Legend: "Strongly Disagree (SD) – 1.00 to 1.80", "Disagree (D) – 1.81 to 2.60", "Neutral (N) – 2.61 to 3.40", "Agree (A) – 3.41 to 4.20", "Strongly Agree (SA)", - 4.21 to 5.00"

Table 4 presents the respondents perceived impact of blended learning among Grade 12 students at Young Achievers' School of Caloocan.

The findings reveal an overall weighted mean of 3.30, which is verbally interpreted as Neutral. This indicates that, in general, the respondents neither strongly agreed nor strongly disagreed regarding the impact of blended learning on their learning experiences. The result suggests that while students recognize certain advantages of blended learning, they also experience limitations that prevent them from expressing a consistently positive perception.

Among the indicators, the statement **"I find it easier to understand difficult grade 12 lessons when they are taught face-to-face rather than online"** obtained the highest weighted mean of 4.20 (agree) ranked first. This implies that most respondents believe face-to-face instruction remains more effective than online learning when dealing with complex lessons. Similarly, the statement **"blended learning positively affects my academic performance"** received a weighted mean of 3.90 (agree), ranked second, while **"blended learning is effective for**

Grade 12 students" obtained a weighted mean of 3.80 (agree), ranking third. These findings indicate that despite preferring face-to-face instruction for difficult topics, students still acknowledge that blended learning positively contribute to their academic performance.

On the other hand, several indicators were interpreted as **Neutral**, including responsibility for learning (WM = 3.30), completing school task efficiency (WM = 3.23), understanding lesson through combination of classroom discussion and online modules (WM = 3.20), understanding lesson better (WM = 2.90), Motivation to study (WM = 2.87), and the effect of internet connectivity issues on academic performance (WM = 2.87). The statement **"I actively participate during online classes"** obtained the lowest weighted mean of 2.73, indicating that students were generally neutral regarding their level of participation during online sessions. These results suggest that while blended learning offers flexibility and convenience, students may still encounter challenges related to engagement, motivation, and technological limitations that affect their overall learning experience.

The findings are consistent with the study of Han (2023) [7], which found that the effectiveness of blended learning is positively associated with students' learning outcomes when supported by well-designed course objectives. Learning resources, classroom activities, assessment, and technology support. The study emphasized that blended learning can improve learning outcomes. However, its success depends on the quality of implementation and availability of adequate technological resources. Likewise, Han and Ellis (2023) [8] reported that students who perceive their blended learning environment more positively tended to adapt better learning strategies and achieve better academic results. These studies support the present findings, which show that students generally recognize the benefits of blended learning while still expressing reservations regarding online engagement and the effectiveness of fully online instructions.

3. Impact of blended learning on Academic Performance of the Respondents

Table 5: Impact of Blended Learning on Respondents' Academic Performance

Variables	Pearson's r	p-value	Interpretation	Decision
Blended Learning and Respondents' Academic Performance	0.53	0.003	Moderate Positive Correlation	Reject the Null Hypothesis

As shown in the table, the computed Pearson's correlation coefficient (r) is 0.53 with a pvalue of 0.003, indication a moderate positive relationship between blended learning and the respondents' academic performance. Since the computed p-value (0.003) is less than the 0.05 level of significance, the null hypothesis is rejected. This means that there is a significant relationship between blended learning and the academic performance of the respondents. The result suggests that students with more positive experiences in blended learning tend to demonstrate better academic performance. According to Gignac and Szodorai (2016) [6], a correlation coefficient ranging from 0.50 to 0.69 represents a moderate to large relationship, supporting the

interpretation of the obtained Pearson's correlation coefficient.

Conclusion

Based on the results of the study, the researchers concluded that blended learning has a positive impact on the academic performance of Grade 12 students at Young Achievers' School of Caloocan, Inc. The findings showed that most students see blended learning as a tool that helps them understand lessons, complete tasks, and become more responsible for their own learning. The study also found that blended learning gives students more flexibility and allows them to learn through both online and face-to-face classes. However, some students still experience challenges, especially with poor internet connection and technical issues, which may affect their learning experience and academic performance. Overall, blended learning can be considered an effective learning approach for Grade 12 students when it is properly implemented and supported. The success of blended learning depends on students' participation, access to learning resources, and the continuous improvement of learning environment.

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