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Gross Motor Skills of Grade 7 Learners: Basis for Development of Training Program

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Abstract

This causal-comparative study assessed the gross motor skills of Grade 7 students at Muñoz National High School to guide an intervention program. Using the Test of Gross Motor Development-2 (TGMD-2), data were analyzed via descriptive statistics, the Mann-Whitney U, and Kruskal-Wallis tests. Results revealed that both locomotor (e.g., running, hopping) and object control skills (e.g., catching, dribbling) were below average, with 56.2% of students scoring below the average range; 4.3% were classified as very poor, and 16.3% as poor. Males generally performed better than females, and underweight or normal-weight students displayed higher locomotor skills than heavier peers. Demographic factors like age and socioeconomic status showed no significant impact on motor performance. An intervention program was developed to address these skill gaps, with recommendations for individualized support and a safe learning environment to enhance students' gross motor skills and physical fitness.

Keywords: *Gross Motor Skills, TGMD-2, Muñoz National High School*

INTRODUCTION

Gross Motor Skills (GMS) are vital for the growth and development of learners, significantly contributing to their physical health, cognitive function, and overall well-being. These skills involve large muscle movements required for tasks such as running, jumping, and throwing, forming the foundation of sports activities and context-specific movements. The development of GMS among learners is essential for determining their proficiency in various activities and enhancing cognitive skills (Veldman et al., 2018; Zhang et al., 2018; Cserjesi et al., 2023).

Assessing the gross motor skills of learners is crucial to documenting their potential and addressing any delays in motor development. Developing fundamental motor skills promotes well-being, provides opportunities for social-emotional learning, and is integral to physical education and sports (Phillips et al., 2023). Despite the importance of these skills, there is currently no specific assessment for gross motor skills included in the MAPEH Curriculum in the Philippines. Although physical fitness tests are conducted annually, they do not specifically evaluate gross motor skills, highlighting the need for targeted assessments.

Previous research has shown a strong positive association between gross motor skills and academic achievement. Integrating movement within academic tasks can significantly enhance academic performance (Botha, & Africa, 2020). Learners with high motor abilities tend to have superior language, numeracy, and attentional skills, demonstrating that motor skills can boost academic outcomes (Cinar et al., 2023). Promoting gross motor skills among learners has also been shown to positively impact cognitive development (Veldman et al., 2018).

The development of motor skills is crucial for individuals' holistic development, particularly during school age, as these skills support body posture in adulthood. Fundamental motor skills encompass locomotor skills such as running, hopping, jumping, and leaping; non-locomotor skills such as bending, twisting, curling, and swaying; and manipulative skills such as throwing, catching, bouncing, and kicking (Demir et al., 2020). These skills are essential for physical activities and sports (Dewi & Verawati, 2022) and are associated with numerous health-related benefits (Logan et al., 2012)

Numerous factors, including socioeconomic status and gender, influence the development of gross motor skills. Learners' success in classrooms depends significantly on their developed gross motor skills (Goodwin, 2015). For instance, low socio-economic status, being underweight or overweight, and sex can adversely affect the acquisition of fundamental motor skills (Godoy-Cumillaf et al. 2020). Research consistently shows that gross motor skills, which involve large muscle activities, develop progressively with age due to both maturation and practice. As children grow, their motor skills naturally improve, linked to neurological development and physical growth (Haywood & Getchell, 2019).

Sex differences also play a significant role in the development of gross motor skills. Boys generally outperform girls in gross motor tasks such as running and jumping, a difference attributed to both biological factors and socialization patterns (Thomas & French, 1985). Boys are often encouraged to engage in more physically active play, which enhances their motor development, while girls might be less encouraged in these areas, affecting their skill acquisition. Additionally, higher BMI is often associated with lower motor proficiency, likely due to reduced physical activity and poorer overall fitness (D'Hondt, 2009). Children from lower socio-economic backgrounds often have less access to resources and opportunities for physical activity, which can impede their motor development (Stodden, 2008).

To measure the gross motor skills of learners, the Test of Gross Motor Development-Second Edition (TGMD-2) by Dale A. Ulrich (Ulrich, 2000) is widely used. This assessment tool helps identify children who are significantly behind their peers in gross motor development

and assists in planning instructional programs to enhance these skills. The TGMD-2 is divided into two subsets: locomotor skills, which include running, galloping, hopping, leaping, and horizontal jumping; and object control skills, which include striking a stationary ball, stationary dribbling, catching, kicking, overhand throwing, and underhand rolling. The Gross Motor Quotient (GMQ) is the combined standard score of these two subsets, providing a comprehensive measure of a child's gross motor development.

Studies have shown that using TGMD-2 can effectively identify children at risk of motor disorders and highlight the importance of gross motor skills in cognitive development (Logan et al., 2012; Fathirezaei et al., 2022). Furthermore, motor skills have a significant relationship with components of executive functions such as inhibition, working memory, and planning or organizing (Fathirezaei et al., 2022). Better performance in motor skills is significantly associated with higher levels of receptive vocabulary, attentional skills, and academic achievement (Cinar et al., 2023). Learners with better motor abilities acquire superior language, numeracy, and attentional skills, and the integration of physical activity within academic tasks can promote gross motor development and improve academic performance (Botha, & Africa, 2020).

Consequently, this research paper aims to assess the gross motor skills of Grade 7 learners at Muñoz National High School, serving as a basis for developing a tailored training program. The assessment, conducted using TGMD-2, generates data to develop a training program suited to the learners' needs. The results of this study serve as a baseline for crafting a program specific to the learners' needs, aiding physical educators in the early identification of motor delays based on the TGMD-2 assessment.

Research Purpose

This study focused mainly on assessing the Gross Motor Skills (GMS) of Grade 7 learners of Munoz National High School which served as the basis for the development of a training program. Specifically, it sought to answer the following questions:

1. What is the profile of the respondents in terms of age, sex, Body Mass Index, and socio-economic status?
2. What is the gross motor performance of the students in terms of locomotor (e.g., run, gallop, hop, leap, horizontal jump, and slide) and object control (e.g., striking a stationary ball, stationary dribble, catch, kick, overhand throw, and underhand roll)?
3. What is the Gross Motor Quotient (GMQ) of the students?
4. Is there a significant difference in the Gross Motor Skills (GMS) in terms of locomotor and object control of the respondents when grouped according to profile variables?
5. What intervention program can be developed to cater to the needs of the learners based on the Gross Motor Skills (GMS) assessment?

METHODS

Research Design

The present study aimed to assess the Gross Motor Skills (GMS) of the respondents using the TGMD-2 developed by Dale A. Ulrich (Ulrich, 2000) to come up with a training program for the needs of the learners' motor and cognitive development. This study used causal-comparative research to determine the cause or consequences of differences that already exist among the respondents (Fraenkel & Wallen, 1990).

Respondents of the Study

The participants in this study were the 208 Grade 7 learners enrolled in Muñoz National High School. The total enumeration technique was used in this study. Simply, the whole population served as the respondents of the study.

Data Collection

Before the conduct of the study, the researcher sought permission from the school division Superintendent through the School Principal and District Supervisor. The researcher scheduled the data gathering during free time or vacant time of the learners to ensure minimal disruption to school activities. The assessment was explained to the respondents with an informed participant consent form. The respondents answered the questionnaire by indicating their profile. Data gathered by the researcher were kept confidential and anonymity of the respondents was maintained.

Specifically, to measure the Gross Motor Skills (GMS), the lone physical education teacher for Grade 7 used the TGMD-2 manual. Learners were subjected to the Locomotor subset which includes run, gallop, hop, leap, horizontal jump, and slide. After the locomotor subset, learners performed the object control subset such as striking a stationary ball, stationary dribble, catch, kick, overhand throw, and underhand roll. It was recorded using the Profile/Examiner Record Form.

Data Analysis

The data gathered were tallied, tabulated, organized, and analyzed. Descriptive and inferential statistical analyses were conducted with the aid of Microsoft Excel and IBM SPSS v. 25. Frequency (n) and percent (%) were calculated to gauge the profile of the respondents as to their age, sex, body mass index (BMI), and socio-economic status (SES). Mean (M), standard deviation (SD), minimum, and maximum were used to describe the respondents' locomotor skills (e. g., run, gallop, hop, leap, horizontal jump, slide, overall locomotor) and object control skills (e. g., striking a stationary ball, stationary dribble, catch, kick, overhand throw, underhand roll, and overall object control. The calculated mean scores were described based on the guidelines provided in TMGD2 page 15 i.e., very poor if 1 to 3, poor if 4 to 5, below average if 6 to 7, average if 8 to 12, above average if 13 to 14, superior if 15 to 16, and very superior if 17 to 20 (Ulrich, 2000).

Moreover, to determine the respondents' gross motor quotient following the guidelines in the TGMD-2, their test scores for the locomotor skills and object control skills were summated. Then the calculated sums were described as follows: very poor if less than 70, poor if 70 to 79, below average if 80 to 89, average if 90 to 110, above average if 111-120, superior if 121 to 130, and very superior if greater than 130 (Ulrich, 2000). The frequency (n) and percent (%) of gross motor quotient scores for each description were calculated.

Further, before conducting inferential statistical analyses to test the difference in the gross motor skills of the respondents when grouped by their profile variables, parametric assumptions such as normality and homoscedasticity were checked. Results showed that gross motor skills data were not normally distributed, and the variances of some groups were not homogeneous. For this reason, nonparametric tests were conducted.

Specifically, Mann-Whitney U test was conducted to test the difference in the gross motor skills of the respondents when they are grouped according to sex. Effect sizes (r) were estimated by dividing Z value by the square root of the total number of observations (N) and were interpreted based on the guidelines proposed by (Cohen, 1988). i.e., 0.1 is small, 0.3 is medium, and 0.5 is large. On the other hand, Kruskal-Wallis H test was performed to test the difference in the gross motor skills of the respondents when these were grouped by age, BMI, and SES. Pairwise comparisons with Bonferroni correction were further conducted when the Kruskal-Wallis H test result was significant at .05 level.

Validation of the Intervention Program

The intervention program developed by the researcher was validated by three knowledgeable individuals in Physical Education. The first validator, a master teacher at Roxas San Antonio Senior High School, holds a doctorate in Physical Education and has been teaching for 10 years. The second validator, a Teacher III at Ilagan West National High School and MAPEH Coordinator, possesses a Master of Science in Teaching Physical Education and also has 10 years of teaching experience. The third validator, an assistant professor at Isabela State University – Roxas Campus, is pursuing a doctorate in Physical Education and has 22 years of teaching experience.

These individuals assessed the proposed intervention program using a five-point rating scale across five key measures. They rated the program from 1 (poor) to 5 (excellent) based on its structure and relevance to learners' needs, its effectiveness in addressing gross motor deficiencies, the adequacy of its frequency, intensity, and duration, the appropriateness of the variety and variations of proposed activities, and the sufficiency of personnel to monitor and assess individual skill development. This thorough validation process was essential to ensure that the intervention program is well-suited to improving the gross motor skills of the learners and meets their diverse needs effectively.

FINDING AND DISCUSSIONS

Respondents' Profile

The profile of Grade 7 learners at Muñoz National High School is summarized in Table 1. Majority of respondents were 12 years old (49.04%) or 13 years old (47.60%), with smaller proportions at 14 years old (1.44%) and 15 years old (1.92%). The sample consisted of 56.25% females and 43.75% males. Most students were of normal weight (50.48%), followed by underweight (37.50%), overweight (10.58%), and obese (1.44%). The socio-economic status varied among respondents, with 36.06% reporting a household income below 10,000, 37.50% between 10,000 to 15,000, 1.92% between 15,001 to 20,000, and 24.52% above 20,000.

Table 1. Distribution of Respondents According to Age, Sex, BMI, and SES

Profile	n	%
Age		
12 years old	102	49.04
13 years old	99	47.60
14 years old	3	1.44
15 years old	4	1.92
Sex		
Female	117	56.25
Male	91	43.75
Body Mass Index		
Underweight	78	37.50
Normal Weight	105	50.48
Overweight	22	10.58
Obese	3	1.44
Socio-economic Status		
Below 10,000	75	36.06
10,000 to 15,000	78	37.50
15,001 to 20,000	4	1.92
Above 20,000	51	24.52

Gross Motor Skills

The locomotor skills performance of Grade 7 learners at Muñoz National High School, as depicted in Table 2, illustrates varied levels of locomotor skills across different skills. The analysis of locomotor skills among Grade 7 learners at Muñoz National High School indicates a varied level of performance across different skills. While hop demonstrated an average level of performance ($M = 9.72$, $SD = .87$), other skills such as running ($M = 5.19$, $SD = 1.76$), leap ($M = 5.83$, $SD = .65$), horizontal jump ($M = 7.10$, $SD = 1.61$), and slide ($M = 7.96$, $SD = .33$) exhibited below-average to poor levels of performance. Despite the variability in individual skill performances, the composite measure of total locomotor skills ($M = 7.23$, $SD = .65$) highlights a consistent trend of below-average performance across the assessed skills.

Table 2. Locomotor Skills of the Respondents

Locomotor Skills	min	Max	M	SD	Remarks
Run	1.00	8.00	5.19	1.76	Poor
Gallop	.00	8.00	7.58	1.26	Below Average
Hop	2.00	10.00	9.72	.87	Average
Leap	.00	6.00	5.83	.65	Poor
Horizontal Jump	.00	8.00	7.10	1.71	Below Average
Slide	4.00	8.00	7.96	.33	Below Average
Total	3.83	8.00	7.23	.65	Below Average

As can be gleaned on Table 3, the object control skills among the respondents indicates a varied level of performance across different skills. While striking a stationary ball showed an average level of performance (M = 8.28, SD = 2.10), other skills such as catch (M = 5.72, SD = .76), stationary dribble (M = 6.83, SD = 1.40), overhand throw (M = 6.90, SD = 1.67), and underhand roll (M = 7.35, SD = 1.24) exhibited below-average levels of performance. These findings suggest that there is a need for focused interventions to improve object control skills among the students, particularly in skills such as catch and stationary dribble, which demonstrated poor to below-average performance.

It is noteworthy that despite the average level of performance in striking a stationary ball, the variation was quite large (*SD* = 2.10) and scores ranged from 0 to 10, suggesting that some students performed below average level in this area. Furthermore, the overall composite measure of total object control skills (*M* = 7.12, *SD* = .91) reflects a below-average level of performance. This underscores the importance of considering the collective performance across various skills, indicating areas where targeted interventions are necessary to elevate the overall object control capabilities of the students.

Table 3. Object Control of the Respondents

Object Control	Min	Max	M	SD	Remarks
Striking Ball	.00	10.00	8.28	2.10	Average
Stationary Dribble	2.00	8.00	6.83	1.40	Below Average
Catch	2.00	8.00	5.72	.76	Poor
Kick	.00	8.00	7.63	1.13	Below Average
Overhand Throw	.00	8.00	6.90	1.67	Below Average
Underhand Roll	.00	8.00	7.35	1.24	Below Average
Total	2.83	8.33	7.12	.91	Below Average

The distribution of respondents according to Gross Motor Quotients (GMQ), as depicted in Table 4, highlights a diverse range of motor performance levels within the student population. While a substantial portion of students (43.8%) fall within the average range, a notable proportion exhibits below-average motor skills (35.6%). Furthermore, there are students classified as poor (16.3%) or very poor (4.3%), indicating significant motor skill deficits among some individuals. Additionally, the provided general gross motor quotient (*M* = 85.84, *SD* = 8.24) suggests that more students perform gross motor skills at below-average levels.

Table 4. Gross Motor Quotients of the Respondents

Gross Motor Quotient	n	%
Very Poor (Below 70)	9	4.3
Poor (70 to 79)	34	16.3
Below Average (80 to 89)	74	35.6
Average (90 to 110)	91	43.8
Total	208	100.0

Note. General Gross Motor Quotient: min = 53, max = 96, M = 85.84, SD = 8.24

Demographic Factors and Gross Motor Skills

The findings from Table 5 present the outcomes of the Kruskal-Wallis H test, examining the potential differences in the levels of gross motor skills among the respondents when categorized according to age. Gross motor skills encompass locomotor skills, object control skills, and gross motor quotients. The results revealed non-significant differences in locomotor

skills ($H = 1.18$, $p > .75$), object control skills ($H = 5.84$, $p > .12$), and gross motor quotients ($H = 3.36$, $p > .34$) across age groups, suggesting that the performance of gross motor skills among respondents does not significantly vary based on their age.

These findings on the non-significant differences in gross motor skills across age groups are supported by recent research which has shown that chronological age is a poor predictor of motor skill proficiency among adolescents. Although age-related patterns are widely identified in the literature, individual variation in physical growth and development, as well as environmental factors, may account for the wide disparities in motor skill acquisition and performance among age groups. Stodden et al. (2008) conducted a longitudinal study on the developmental trajectories of gross motor skills in children aged 3 to 6 years. The research found improved gross motor skills with increasing age; however, the variation within each age cohort was substantial. This disparity was attributed to individual differences in development, biological maturation, physical activity levels, and environmental opportunities that affect skill practice and performance. The research recommends considering individual differences in skill development to design effective intervention programs and educational systems that promote physical competency among children.

Similarly, Barnett et al. (2009) investigated the impact of age and gender on motor proficiency in a sample of Australian school children aged 5 to 12 years. The findings revealed gender differences in motor proficiency, with boys showing higher performance than girls across all motor domains. However, age is not a significant predictor of motor proficiency when the gender gap is controlled. The research recommends considering the developmental change of the two sexes to design physical-education systems and targeted intervention programs in schools.

The current findings suggest that chronological age may not be a strong predictor of gross motor skill proficiency in Grade 7 students at Muñoz National High School. Although age is associated with certain developmental trends, the wide range of natural developmental differences within a particular grade level positively suggests that other factors, including individual differences in physical growth and development or environmental factors, have a considerable impact on the emergence and quality of gross motor skills. Thus, educational support for improving gross motor skills should not be restricted to a group activity, which is defined by a student's chronological age.

Table 5. Respondent Gross Motor Skills Grouped According to Age

Skills	Age	Md	H	df	p
Locomotor	12 y/o	7.33	1.183	3	.757
	13 y/o	7.33			
	14 y/o	7.17			
	15 y/o	7.25			
Object Control	12 y/o	7.50	5.838	3	.120
	13 y/o	7.33			
	14 y/o	7.83			
	15 y/o	8.00			
Gross Motor Quotient	12 y/o	88.00	3.357	3	.340
	13 y/o	86.00			
	14 y/o	86.00			
	15 y/o	91.00			

Table 6 shows the results of the Mann-Whitney U test, examining whether sex affects the levels of gross motor skills among the respondents. The results revealed a statistically significant difference in the locomotor skills ($Z = -6.08$, $p < .01$), object control skills ($Z = -8.92$), and gross motor quotients ($Z = -9.11$, $p < .01$) of female respondents and male respondents. In particular, the male respondents outperformed their female counterparts in the performance of gross motor skills. The magnitude of the difference in their locomotor ($r = 42.20\%$), object control ($r = 61.85\%$), and gross motor in general ($r = 63.19\%$) between male and female respondents was large Hands et al. (2009).

The differences in gross motor skills, both locomotor skills and object control, and the overall gross motor proficiency show that sex is a significant factor in the development of gross motor skills during adolescence. Specifically, the male students were significantly more proficient in all measured areas of gross motor skills, both in terms of locomotor abilities and object control. These findings were further supported by the moderate to large effect sizes, meaning that male respondents outperformed female groups by a significant margin.

This study's findings correlate with the existing body of evidence that suggests there is a difference in gross motor skills between males and females. Indeed, the current authors referenced previous work by Stodden et al. (2008) and Goodway et al. (2010) in this area, finding a systemic difference between male and female participants. These differences can be attributed to biological factors, such as differences in development of musculoskeletal factors, hormonal factors, or societal factors that influence how physical activity is perceived and performed.

The observed sex differences in the overall gross motor skills demonstrated in this study calls for serious considerations in physical education programming as well as in the implementation of interventions. Specifically, when creating programs or policies, educators and policymakers should take a sex-specific approach when trying to ensure that the students have equal access to opportunities to develop this essential set of skills. In addition, it is essential to investigate the causes of the sex-based differential development of motor skills at this stage and develop focused interventions in physical education.

Table 6. Respondent Gross Motor Skills Grouped According to Sex

Skills	Sex	n	Md	U	Z	p	r
Locomotor	Female	117	7.17	2736.50	-6.08	<.001	0.4220
	Male	91	7.67				
Object Control	Female	117	6.67	1514.00	-8.92	<.001	0.6185
	Male	91	7.83				
Gross Motor Quotient	Female	117	84.00	1407.50	-9.11	<.001	0.6319
	Male	91	92.00				

Table 7 presents the results of the Kruskal-Wallis H test, examining the influence of Body Mass Index (BMI) on gross motor skills proficiency among Grade 7 learners at Muñoz National High School. The findings indicate that there are no significant differences in object control skills and gross motor quotients across the various BMI categories. Specifically, the test results for object control skills (H = 1.16, p > .76) and gross motor quotients (H = 3.60, p > .30) suggest that BMI does not significantly impact these aspects of motor proficiency.

The non-significance in object control skills and gross motor quotients indicates that students' weight status, whether they are underweight, normal weight, overweight, or obese, does not substantially affect their ability to perform tasks such as catching, dribbling, or their overall motor competency. This finding is important as it highlights that factors other than BMI might be more influential in determining proficiency in these areas. It suggests that interventions aimed at improving object control skills and general gross motor abilities might be universally applicable across different BMI categories without the need for BMI-specific adjustments.

However, it is worth noting that despite the lack of significant differences in object control skills and gross motor quotients, a statistically significant difference was observed in locomotor skills (H = 9.50, p < .03). This indicates that while BMI may not affect all aspects of gross motor proficiency, it does have a specific impact on locomotor skills.

able 7. Respondent Gross Motor Skills Grouped According to Body Mass Index

Skills	BMI	n	Md	H	df	p
Locomotor	Underweight	78	7.50	9.496	3	.023
	Normal	105	7.33			
	Overweight	22	7.00			
	Obese	3	6.67			
Object Control	Underweight	78	7.67	1.162	3	.762
	Normal	105	7.33			
	Overweight	22	7.33			
	Obese	3	7.67			
Gross Motor Quotient	Underweight	78	90.00	3.601	3	.308
	Normal	105	87.00			
	Overweight	22	86.00			
	Obese	3	86.00			

Post hoc pairwise comparisons, as shown in Table 8, revealed significant differences in locomotor skills between several BMI groups. Specifically, obese students differed significantly from both normal-weight and underweight students, while overweight students also differed significantly from underweight students. These results suggest that BMI has a notable impact on locomotor skills performance among Grade 7 learners. This implies that BMI does have a significant effect on locomotor skills, despite the overall non-significance in other gross motor skills categories.

Studies in the literature support the findings that BMI has a significant effect on gross motor skills. Kit et al. (2017), for instance, emphasized the impact of weight status on motor skill acquisition, noting that toddlers with a BMI higher than the 95th percentile for their age and sex achieved lower gross motor scores compared to their healthy-weight peers. This indicates that the influence of weight status on gross motor skill development begins very early in life. Similarly, Gentier et al. (2013) conducted a longitudinal study examining the relationship between children's BMI and their motor competence. Their results revealed that higher BMI is associated with a decline in motor competence over time, suggesting a potential bidirectional relationship between motor skill proficiency and developmental weight status. These findings underscore the complexity of factors affecting motor skills development and highlight the need for interventions that address weight status to foster physical health and gross motor proficiency in children and adolescents.

In the context of this study, while BMI did not significantly affect object control skills or overall gross motor quotients, it did influence locomotor skills. This aligns with the broader literature indicating that weight status can impact certain aspects of motor skill development. Tailored intervention programs that account for BMI variations can be instrumental in addressing these disparities and enhancing locomotor skills among students.

Table 8. Pairwise Comparisons of Locomotor Scores of Obese, Overweight, Normal, and Underweight

Sample 1 – Sample 2	Test Statistic	Std. Error	Std. Test Stat	*Sig.*
Obese – Overweight	46.57	36.56	1.27	.203
Obese – Normal	70.33	34.78	2.02	.043
Obese – Underweight	79.29	34.95	2.26	.023
Overweight – Normal	23.75	13.93	1.70	.088
Overweight – Underweight	32.71	14.34	2.28	.023
Normal – Underweight	8.96	8.88	1.00	.313

Further, the impact of socio-economic status on gross motor skills among the respondents was also investigated, by conducting a Kruskal-Wallis H test. As shown in Table 9, the results revealed no statistically significant differences in locomotor skills (H = 2.74, $p > .43$), object control skills ($H = 1.38$, $p > .71$), and gross motor quotients ($H = 2.89$, $p > .40$) across various socio-economic strata, suggesting that SES does not have a discernible impact on the gross motor skills development of Grade 7 learners at Muñoz National High School.

The absence of significant differences in gross motor skills competence across disparate socio-economic groups may suggest that there are other factors influencing the development and performance of sets of skills that more importantly impact this student population. This evidence implies that further research into subsequent sensitive is required to discover the components forming the elements underlying environmental, personal, and educational factors for developing interventions enabling the significant improvement of motor skills competence differences across diverse socio-economic contexts.

Notably, on the other side of the argument is the study of Veldman et al. (2018), who identified a negative correlation between socio-economic status and toddler gross motor abilities. As a result, the understanding of the impact of socioeconomic factors becomes even more complex, given the presence of conflicting results requiring the establishment of a consistent pattern. In addition, Hands et al. (2009) revealed that increased parental involvement, including parent-child physical activities and the provision of sports equipment, was positively linked with better gross motor skills in school-aged children. Considering the differences, a holistic approach is required to consider how factors other than socio-economic status combine to affect motor skill development. Moreover, the study of Stodden et al. (2008) revealed the role of fundamental motor skills in predicting physical activity levels among children. Specifically, running, jumping, and throwing abilities positively influenced participation in physical activities, demonstrating the interconnectedness of motor skills and physical activities, as they both must be considered in promoting active lifestyles in children and adolescents.

Table 9. Respondent Gross Motor Skills Grouped According to Socio-Economic Status

Skills	SES	*n*	*Md*	*H*	*df*	*p*
Locomotor	Below 10,000	75	7.33	2.741	3	.433
	10,000 to 15,000	78	7.33			
	15,001 to 20,000	4	8.00			
	Above 20,000	51	7.33			
Object Control	Below 10,000	75	7.50	1.380	3	.710
	10,000 to 15,000	78	7.33			
	15,001 to 20,000	4	7.41			
	Above 20,000	51	7.33			
Gross Motor Quotient	Below 10,000	75	88.00	2.888	3	.409
	10,000 to 15,000	78	88.00			
	15,001 to 20,000	4	92.50			
	Above 20,000	51	86.00			

As outlined below, the intervention program seeks to meaningfully address the various needs and concerns identified in the endeavor to improve the gross motor skills of the Grade 7 students in Muñoz National High School. The motor skills intervention program, designed according to FITT (Frequency, Intensity, Time, and Type), intends to increase students' proficiency in locomotor and object control skills, remove gender differences, and prioritize inclusivity and accessibility. Its complexity lies in offering young people a range of exercises suitable for diverse abilities and growth, and hence, learners have a complete position in the context of physical education. Periodic performance monitoring and assessment, feedback collection, and observation reporting are key because the plan should be updated for effective and accurate quality work with students.

The program ensures skilled acquisition through structured physical education lessons, sports days, and exciting activities. Students receive weekly lessons on the basic techniques of running, hopping, jumping, and sliding. The intensity and complexity of these techniques are determined based on regular assessments of students' current skill level. Furthermore, such lessons are supplemented twice a semester with an integrated sports day and annual interclass competitions. These events conducted by the robust physical education faculty provide an opportunity for practical application of acquired skills and the development of friendly competition. To maintain the highest rates of student motivation and entertainment, the PE curriculum includes exciting activities such as relay races, obstacle courses, and treasure hunts. These activities help stimulate the students to work for the reward. Physical education teachers regularly evaluate the students in these endeavors and collect feedback to refine the curricula based on the performance.

The program incorporates specialized drills, modified games, and extracurricular clubs or workshops for object control skills proficiency. Drills and practice sessions are conducted twice a week alongside the lessons with a rational increase in complexity to catch, dribble, throw, or strike. In this manner, students are simultaneously challenged and accommodated to develop specific motor control skills. Modified games, such as mini-basketball, soccer, etc., are further introduced to the students throughout the academic year. These games aim to immerse the students in a continuous pursuit to acquire a specific skill in a fun and easily relatable environment. The extracurricular clubs and after-school-provided workshops are also offered to students possibly interested in maintaining or broadening their acumen. To ensure the student's proficiency in the specific skills, the activities are monitored with periodical assessments, participation rates, and progress reports.

Another main goal of the program is to reduce gender differences regarding skill development. Since the rest of PE activities are gender-sensitive, once a month, the separate clinic focuses on particular skills each sex lacks. A regular program based on these principles includes enabling mentoring relationships between students and ensuring they can support one another. These programs are equipped and managed by PE teachers and volunteers, and their impact is measured by the level of integration and feedback.

Lastly, the promotion of inclusivity and accessibility to allow all students to engage in physical education activities is vital. The program supplies a subsidy of sports equipment and uniforms to the students from low income- based families. It also provides transport assistance to students facing transport logistical problems. The promotion of inclusivity in language and behavior development are continuous innovation measures. All the school staff members participate in the programs to ensure a conducive atmosphere that each student is accepted wholeheartedly. Response from the beneficiaries and observation on inclusivity are vital in understanding the effectiveness of such measures. The ultimate objective of such innovations is to attain a zero percent exclusion of students based on financial or logistical challenges. Such approaches to physical education program are essential in enhancing skill development and maximum participation in a conducive atmosphere.

Table 10. The Developed Intervention Program

Objectives	Activities	Frequency	Intensity	Time	Type	Persons Involved	Monitoring and Evaluation
Improve locomotor skills proficiency	1. Conduct structured physical education classes focusing on running, hopping, jumping, and sliding.	Once a week	Moderate to high, depending on skill level	Throughout the academic year	Structured physical education classes	Physical education teachers	Regular assessment of individual skill development progress
	2. Organize sports days and interclass competitions to encourage participation and friendly competition among students.	Twice per semester	Moderate to high	Throughout the academic year	Sports days and interclass competitions	Physical education teachers, school staff	Attendance records, feedback from participants
	3. Incorporate fun and engaging activities such as relay races, obstacle courses, and team-based challenges into PE curriculum.	Weekly	Moderate to high	Throughout the academic year	Relay races, obstacle courses, team-based challenges	Physical education teachers	Observation of student engagement and enjoyment
Enhance object control skills proficiency	1. Provide specialized drills and practice sessions for skills like catching, dribbling, throwing, and striking a stationary ball.	Twice per week	Moderate, with increasing complexity over time	Throughout the academic year	Specialized drills and practice sessions	Physical education teachers	Periodic skill assessments and feedback from instructors
	2. Introduce modified games and activities that emphasize object control skills,	Throughout the academic year	Moderate	Throughout the academic year	Modified games and activities	Physical education teachers	Participation rates in skill-specific activities

	such as mini-games of basketball, soccer, and baseball.					
	3. Offer extracurricular clubs or workshops focusing on specific object control skills, allowing interested students to further develop their abilities.	Once per week	Moderate	Throughout the academic year	Extracurricular clubs or workshops	Physical education teachers, volunteer	Attendance records, progress reports from club leaders
Address gender disparities in skill development	1. Implement gender-sensitive approaches in physical education classes, providing equal opportunities for skill development.	Throughout the academic year	Adapted to individual needs	Throughout the academic year	Gender-sensitive approaches	Physical education teachers	Observation of gender-inclusive practices, feedback from students
	2. Offer separate skill clinics or workshops for male and female students, focusing on areas where disparities are observed.	Once per month	Moderate	Throughout the academic year	Separate skill clinics or workshops	Physical education teachers, volunteer	Participation rates, feedback from participants
	3. Encourage peer mentoring and support among students, fostering a culture of inclusivity and cooperation in skill development activities.	Throughout the academic year	Moderate	Throughout the academic year	Peer mentoring and support	Physical education teachers, student leaders	Student testimonials, observation of peer interactions
Promote inclusivity and accessibility	1. Provide subsidized sports equipment and uniforms for students from lower socio-economic backgrounds	Beginning of the academic year	Moderate	Throughout the academic year	Subsidized equipment and uniforms	School administration, physical education teachers	Records of equipment distribution, feedback from beneficiaries
	2. Organize transportation assistance for students who face challenges in attending extracurricular sports activities.	Throughout the academic year	Moderate	Throughout the academic year	Transportation assistance	School administration, transportation coordinators	Documentation of transportation arrangements, feedback from participants
	3. Create a supportive and welcoming environment for all students, regardless of BMI or SES, through inclusive language and behavior.	Throughout the academic year	Moderate	Throughout the academic year	Supportive environment	All school staff	Observation of inclusive practices, feedback from students

Table 11 presents the expert validation results of the intervention program aimed at improving Grade 7 students' gross motor skills at Muñoz National High School. The validation, conducted by experienced educators in physical education, assessed the program across five

indicators. Remarkably, the program received the highest rating of 5.00 on all indicators, indicating excellent validation. This outcome underscores the program's effectiveness in addressing learners' needs, addressing gross motor deficiencies, ensuring adequate frequency and intensity, providing appropriate activity variety, and having sufficient personnel for monitoring and assessment.

Table 11. The Expert Validation of the Intervention Program

Indicators	Mean	Interpretation
1. Structure and relevance to learners' needs	5.00	Excellent
2. Alignment of activities with addressing gross motor deficiencies	5.00	Excellent
3. Adequacy of frequency, intensity and duration	5.00	Excellent
4. Appropriateness of the variety and variations of activities	5.00	Excellent
5. Sufficiency of personnel to monitor and assess individual skill development	5.00	Excellent
Total	5.00	Excellent

CONCLUSION

The research conducted at Muñoz National High School has revealed serious gaps in the gross motor skills of most Grade 7 learners. Both locomotor and object control subtests have proven below-average results for many students. Male participants generally demonstrated a higher level of gross motor proficiency than females. Underweight and normal-weight students showed better locomotor skills compared to their heavier counterparts. Demographic characteristics, such as age and socio-economic status, did not affect motor performance. Based on these outcomes, an intervention program has been designed to cover the detected motor deficiencies. The program consists of structured PE classes, special motor skills drills, modified games, and gender-related activities. The program aims to ensure a high level of motor skills proficiency among learners by providing equal opportunities for all students and creating a supportive environment that considers gender differences and individual needs.

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