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Mathematics Performance, Academic well-being, and Educational Aspirations of Junior High School Students

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Abstract

Academic well-being is one of several elements that influence students' math learning and performance. This study looked at students' academic well-being in terms of math self-concept, schoolwork engagement, and burnout in relation to their educational aspirations in mathematics. It looked at the connections between the learners' mathematical performance and educational goals, as well as the connections between the learners' academic well-being and those variables. It used a descriptive-correlational study design. The population of grade 10 students from Lawa Integrated School served as the source of the statistics 161 students were gathered using the standard random sampling method (males: 86, females: 75). A survey questionnaire was used to assess the student's academic well-being in terms of math self-concept, schoolwork engagement, and school burnout, educational aspirations, and mathematics achievement to gather data. The mean, standard deviation, frequency, percentage, mean percentage scores, Pearson product-moment, and Spearman rank order correlations were used to examine the collected data. The results showed a robust and statistically significant association between the student's academic success and their arithmetic proficiency. The findings showed a small but statistically significant correlation between the learners' academic wellbeing and educational aspirations. On the other hand, there was a modest and statistically significant correlation between the learners' academic achievement in mathematics and their aspirations for further education.

Keywords: Academic well-being, Educational aspirations, Math self-concept, Mathematics performance, Schoolwork engagement, School burnout



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INTRODUCTION

Mathematical ability is crucial for the economic success of societies (Lipnevich et al., 2011), for mathematics skills are essential in understanding other disciplines, including engineering, sciences, social sciences, and even the arts (Patena & Dinglasan, 2013). Due to the importance that mathematics engulfs, the subject has been considered one of the essential cores within the school curriculum. Lately, an attempt initiated by the Science Education Institute of the DOST (SEI) and the Philippine Council of Mathematics Teachers Educators (MAthTED) crafted the "Framework for Philippine Mathematics Teacher Education," whose main goal is to improve the performance of mathematics teachers based on a set of standards to become effective mathematics teachers (Framework for Teacher Education). Despite the effort made, students' mathematics performance

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is deteriorating and has become worrisome. The 2018 National Achievement Test (NAT) results showed that the grade 10 Mean Percentage Score (MPS) of 44.59 improved by 0.51 over the score in 2017 of 44.08, however this fall under the "low mastery" level in the NAT (Albano, 2019). International tests' results, for instance, in the Trends in International Math and Sciences Study (TIMSS), showed the dismal performance of our students in basic education. Of the 45 countries participating in the Third International Mathematics and Science Study, the Philippines ranked 41 in mathematics and 42 in Science (TIMMS, 2002). These results motivated the researcher to examine the factors that may influence students' performance in mathematics. There have been studies that investigated the factors which cause the low performance of students in Mathematics. One was by examining the academic well-being of the students.

Academic well-being in students is a multidimensional construct with several dimensions. Previous research has shown that well-being is an important predictor of a variety of educational outcomes. This includes school burnout and engagement, as well as engagement, school value, and satisfaction with educational choice stated in the study by Tuominen-Soini et al. (2012) and supported by (Fiorilli et al., 2017). As stated in the study of Ayodele (2011), the relationship between academic performance and self-concept is an important construct in education. Furthermore, previous research (Nagy et al., 2006; Korhonen et al., 2016) has shown that performance-related indicators (i.e., grades) and motivational beliefs predict educational aspirations. As a result, in the current study, math self-concept, schoolwork engagement, and school burnout were considered indicators of academic well-being in order to predict mathematics performance and educational aspiration was given the body of literature indicating a link between academic well-being (in terms of math self-concept, schoolwork, and school burnout) as well as student mathematics performance and educational aspirations. The relationship between academic well-being, mathematics performance, and educational aspirations of Grade 10 students at Lawa Integrated School was investigated in this study.

LITERATURE REVIEW

Academic well-being among students is described as a multidimensional construct with several sub-dimensions. Previous research has shown that well-being is an important predictor of various educational outcomes. This includes school burnout and engagement, as well as engagement, school value, and satisfaction with educational choice (Tuominen-Soini et al., 2012). Furthermore, due to its relationship to academic performance, self-concept is an important construct in education (Ayodele, 2011). The researcher defined and assessed self-concept within a specific domain, in this case, mathematics. As a result, in the current study, mathematics self-concept, schoolwork engagement, and school burnout were chosen as indicators of academic well-being.

Math self-concept can be classified as students' perceptions of their own mathematical abilities. Previous research has investigated the relationship between self-concept and academic achievement in mathematics, and it is regarded as an important factor in mathematics education. The study of Ayodeles (2011) discovered a moderate positive correlation between self-concept and mathematics performance among Nigerian secondary students. Timmerman et al. (2016) discovered a positive correlation between math self-concept and math achievement, which is consistent with previous research of Parker et al. (2013) and Luo et al. (2014). This means that

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students who have a greater belief in and better attitudes and perceptions about their own math skills and achievement perform better on substantive and automated math tasks.

The concept of engagement is multidimensional. The most widely accepted definition of engagement is that it has three interconnected dimensions: behavioral, affective, and cognitive engagement. According to recent research, schoolwork engagement can be defined as a general concept that includes effort, dedication, and assimilation in schoolwork (Salmela-Aro & Upadyaya, 2014).

Burnout was defined as having three dimensions: exhaustion, cynicism, and inadequacy. Cynicism (defined as having a pessimistic, callous, and cynical attitude toward the recipients of one's care or services) is another term for exhaustion, which is the draining of one's emotional reserves as a result of demanding interpersonal interactions. Inadequacy is the propensity to negatively assess one's work with recipients (Maslach & Jackson, 1981).

The most important predictors of actual and career attainment are educational aspirations (Mau & Bikos, 2000) (Garg et al., 2007). There is no clear definition of educational aspirations, nor is there a unified measurement to assess them. "Students' goals and plans within an academic setting can be divided into realistic and idealistic educational aspirations," writes Trebbels (2015). Idealistic aspirations are defined as the students' desired level of achievement, while realistic aspirations are defined as the students' actual perceived likelihood of success and expectations of completing the desired level of education, according to Widlund et al. (2018). Previous studies by Chow et al. (2012) and Guo et al. (2015a) have considered both realistic and idealistic alternatives in the operation of educational aspirations, but no clear distinction has been made between them. In the current study, the researcher combined realistic and idealistic components to represent overall educational aspirations. Additionally, academic self-concept has been found to be a significant predictor of educational and career choices as well as aspirations (Nagengast & Marsh, 2012) (Parker et al., 2012), even when controlling for achievement (Parker et al., 2013). The study of Guo et al. (2015a) discovered that academic self-concept was a strong predictor of long-term occupational aspirations, educational attainment, and educational attainment, in addition to being a key predictor of educational aspirations. Additionally, a study conducted by Parker et al. (2013) revealed a favorable correlation between educational aspirations and mathematics self-concept. Previous research has found that performance-related indicators (i.e., grades) and learning motivation predict educational aspirations (Nagy et al., 2006) (Korhonen et al., 2016).

Researchers have proven that there is a connection between students' educational goals and their math performance. For instance, Shapka et al. (2006) examined the relationships among early mathematics performance, gender, and career aspirations in ninth-grade students and discovered that, even after adjusting for overall academic achievement, students with lower math grades had lower career aspirations than average- and high-performing students. Additionally, even after controlling for important motivational and well-being variables like interest, academic self-concept, and school burnout, the mathematical achievement was still associated with educational aspirations (Parker et al., 2014) (Guo et al., 2015a,b) (Korhonen et al., 2016).

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RESEARCH METHOD

The research designs used in this study were descriptive, cross-sectional, and correlational. The factors influencing how well the learners perform mathematically were found and described using the descriptive method. The investigation and description of correlations between academic success, students' educational aspirations, and academic achievement in mathematics was another goal of this study. Furthermore, it was cross-sectional because it involved observations of poor mathematics performance of grade 10 students at Integrated School of Lawa in West I District, Division of Calamba City, during the academic year 2019-2020. The study's respondents were the entire population of Grade 10 students at the Integrated School of Lawa (ISL), which was divided into four sections: unity, hope, diligence, and loyalty. Using the Simple Random Sampling Technique, a total of 161 learners comprising 75 females (46.6 %) and 86 males (53.4 %) were the respondents of the study during one the school year 2019–2020 was obtained.

Data were primarily collected by means of a questionnaire, with items designed to measure the learners' academic well-being (math self-concept, schoolwork engagement, school burnout) and academic aspirations. The assessment tools that were used in this study are the Self-Description Questionnaire II (SDQII) scale of Marsh (1992). The Utrecht Work Engagement Scale (UWES-S), originally created by Shaufeli, Salanova, et al. (2002) on the basis of the Utrecht Work Engagement Scale, was used to measure schoolwork engagement (Salmela-Aro & Upadyaya, 2014). The School Burnout Inventory, a nine-item questionnaire, was used to assess school burnout. School Burnout Inventory has shown high structural, item, and scale reliabilities, as well as good concurrent validity, when estimated in the context of depressive symptoms, school engagement, and academic achievement. Thus, it could be used in other countries as well as stated in the study of Salmela-Aro & Upadyaya (2014). The student's final grade in Mathematics 10, which is the average grade from the first quarter up to 4th quarter, was used to measure their Mathematics performance.

For the analyses of data, the researcher utilized the following statistical tools for data treatment using SPSS version 20. Mean, and standard deviation was used in describing the learners' level of academic well-being in terms of mathematical self-concept, schoolwork engagement, and school burnout. Mean Percentage Scores (MPS) for the learners' academic performance in Mathematics 10. To describe the learners' level of Mathematics performance, the researcher utilized the grading scale descriptors from the Department of Education. To determine the relationships between students' academic well-being and academic performance in Mathematics 10, the Pearson product-moment correlation coefficient (r) was used. To ascertain the connections between the student's academic success and their educational goals, the Spearman rank-order correlation coefficient (rs) was used.

FINDINGS AND DISCUSSION

Learners' Level of Math Self-concept

As shown in Table 1, the learners had a poor level of math self-concept in terms of understanding and learning math. Students, on the other hand, agree that they will do well in the subject if they put a lot of effort when performing Math-related tasks. The students had a moderate level of self-concept, with an overall weighted mean of 2.55 and an overall standard deviation of

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0.88. According to Balbalosa (2010), students who have positive attitudes toward math tend to perform well, whereas students who have negative attitudes toward math will eventually fail the subject. This means that whatever belief and mindset of the students will be the basis of their future as it dictates and predicts their actions. According to Timmerman et al. (2017), there is a strong positive correlation between math self-concept and mathematics performance. This indicates that students who have greater belief, positive attitude, and perception of their own ability in Math eventually received higher and more substantial achievement results in any Math tests.

Table 1. Learners' Level of Math Self-concept

Indicators	Mean	SD	Descriptive Interpretation Interpretation
(1) I learn Mathematics quickly	2.35	0.67	Low
(2) In my Mathematics class, I understand even the most			
difficult work.	2.34	0.56	Low
(3) I get good marks in Mathematics.	2.70	0.74	Moderate
(4) I am just not good at Mathematics.	2.99	0.92	Moderate
(5) I have always believed that Mathematics is one of my best subjects.	1.92	0.93	Low
(6) I usually do well in Mathematics.	2.07	1.14	Low
(7.) I can do almost all the work in math class if I do not give			Moderate
up.	2.88	0.80	
(8.) Even if the work in Mathematics is hard, I can learn it.			Moderate
	3.04	0.71	
(9) Mathematics is harder for me than for many of my			Moderate
classmates.	2.68	1.16	
(10) I am sure I can learn the skills taught in mathematics			
class well.	2.50	1.11	Low
Composite Mean	2.55	0.88	Moderate

Legend: 3.26 - 4.00 Strongly Agree (High); 2.51 - 3.25 Agree (Moderate); 1.76 - 2.50 Disagree (Low); 1.00 - 1.75 Strongly Disagree (Very Low)

Learners' Level of School Engagement

According to Table 2, learners had a moderate level of engagement in terms of feelings and eagerness to study but a very high level of engagement in terms of "looking forward to their study every time they get up in the morning and enthusiastic about their studies." Overall, the data show that the learners are engaged, as evidenced by the composite mean of 3.77 (SD=1.38). Previous studies by Wonglorsaichon & Wongwanichb (2014) discovered that school engagement is important in promoting students' learning achievement and is a significant factor that has both major influences on students' learning and educational achievement in the classroom.

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	Tabl	e 2.	Learners'	Level	of Sc	hool	Engagement
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Indicators	Mean	SD	Descriptive Interpretation Interpretation
1. When studying, I feel bursting with energy.	3.14	1.74	Moderate
2. I find studying full of meaning and purpose.	4.29	1.14	High
3. Time flies when I am studying.	3.17	1.65	Moderate
4. When studying, I feel strong and vigorous.	3.14	1.57	Moderate
5. I am enthusiastic about my studies.	5.04	0.82	Very high
6. When studying, I forget everything else			Moderate
around me.	3.17	1.63	Moderate
7. Studying inspires me.	3.31	1.63	Moderate
8. When I get up in the morning, I look forward			Very high
to studying.	5.04	0.82	
9. I feel happy when I am studying intensively	3.66	1.39	Moderate
Composite Mean	3.77	1.38	Moderate

Legend: 5.01-6.00 Completely Agree (Very High); 4.01-5.00 Agree (High); 3.01-4.00 Partly Agree (Moderate); 2.01-3.00 Disagree (Low); 1.01-2.00 Partly Disagree (Too Low); & 0.01-1.00 Completely Disagree (Extremely Low)

Learners' Level of School Burnout

Data from Table 3 show that students had a high level of school burnout in terms of motivation and interest in their studies. Findings also show that their lack of motivation and interest in their schoolwork has put them under stress and caused problems in their relationships with others. Furthermore, they had a moderate level of school burnout in terms of worrying about schoolwork-related issues, which caused them to sleep poorly. The students had a moderate level of school burnout, with a mean average of 3.92 and a standard deviation of 1.67. This finding is corroborated by Salmela-Aro & Upadyaya (2014), who found that adolescents' feelings of inadequacy and skepticism about the purpose of education increased in correlation with lower academic achievement and school engagement. Tuominen-Soini et al. (2012) asserted that exhaustion has also been observed in high achievers and motivated students. According to Duru et al. (2014), there is a significant and detrimental relationship between emotional exhaustion and cynicism and student performance. The findings suggest that increasing a student's level of burnout reduces the student's learning and performance.

Table 3. Learners' Level of School Burnout

Indicators	Mean	SD	Descriptive Interpretation Interpretation
(1) I feel overwhelmed by my schoolwork.	4.07	1.59	High
(2) I feel a lack of motivation in my schoolwork and often think of giving up.	4.05	1.68	High
(3) I often have a feeling of inadequacy in my schoolwork.	4.18	1.80	High
(4) I often sleep badly because of matters related to my schoolwork.	3.52	1.74	Moderate

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Indicators	Mean	SD	Descriptive Interpretation Interpretation
(5) I feel that I am losing interest in my schoolwork.	4.05	1.68	High
(6) I'm continually wondering whether my schoolwork has any meaning.	4.12	1.73	High
(7) I brood over matters related to my schoolwork a lot during my free time.	3.80	1.58	Moderate
(8) I used to have higher expectations of my schoolwork than I do now.	3.44	1.50	Moderate
(9) The pressure of my school work causes me problems in my close relationships with others.	4.04	1.77	High
Composite Mean	3.92	1.67	Moderate

Legend: 5.01-6.00 Completely Agree (Very High); 4.01-5.00 Agree (High); 3.01-4.00 Partly Agree (Moderate); 2.01-3.00 Disagree (Low); 1.01-2.00 Partly Disagree (Too Low); & 0.01-1.00 Completely Disagree (Extremely Low)

Distribution of the Learners' Educational Aspirations

Reflected in Table 4 are the idealistic aspirations of the learners, the majority of them (93.2%) wanted to finish college education, and 6.2% wanted to take up a vocational course. While in terms of realistic aspirations, 69.6% of the learners are planning to pursue their college education; 23.6 % of them plan to enroll in vocational/technical courses, and 6.8 % plan to just finish senior high school. This shows that the majority of learners aspire to pursue a college education. According to Khattab (2015), students who have higher aspirations tend to have higher academic achievement compared to those who have lower aspirations and expectations. This simply means that this criterion is a vital predictor of future educational behavior or even success in life stated by Khattab (2015).

Table 4. Distribution of the Learners' Educational Aspirations

Indicators	Frequency (n = 104)	Percentage
Learners' academic degrees want to achieve (idealistic)		
Vocational Education	10	6.2%
College Education	151	93.8.%
Total	161	100.0%
Learners' academic degrees will probably achieve (realistic)		
Senior High School	11	6.8%
Vocational Education	38	23.6%
College Education	112	69.6%
Total	161	100.0%

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Learners' Level of Mathematics Performance

According to the results in Table 5, 70 percent of the students, or 43.6 percent, performed fairly satisfactorily in mathematics, followed by 41 percent, or 25.45 percent, which performed satisfactorily in the subject. Only 34, with 21.1 percent, performed very satisfactorily, and 16, with 9.9 percent, performed exceptionally well in the subject. This demonstrates that the majority of learners (i.e., 43.6 percent) were low performers, meaning they struggled to learn Mathematics. According to the study by Balbalosa (2010), students are fundamentally lacking in basic mathematical operational skills. The math performance in previous years has been disturbingly consistent, whether at the national, international, or even local levels of achievement.

Furthermore, during the 2018 National Achievement Test (NAT), the result revealed that students' scores compared to the previous year indicated only a Mean of 0.51, which can still be classified as a "low mastery" level in the said examination. An analysis was done to determine the relationship between the learners' academic well-being and mathematics performance tested at a 0.01 level of significance. The association of data was checked using the scatter plot, and it was found that a linear relationship exists. So, the researchers used the Pearson moment correlation test to measure the association between the learners' academic well-being and mathematics performance.

Table 5. Learners' Level of Mathematics Performance

Level	Mean Percentage	Frequency	Percentage
	Scores (%)		
Outstanding	90-100	16	9.9%
Very Satisfactory	85-89	34	21.1%
Satisfactory	80-84	41	25.4%
Fairly satisfactory	75-79	70	43.6%
Total		161	100.0%

Legend: 89-100 Outstanding; 85-89 Very Satisfactory;80-84 Satisfactory;75-79 Fairly Satisfactory;75 below Failed

Relationships between Learners' Academic Well Being and Mathematics Performance

Table 6 presents the relationship between academic well-being with its subscales and mathematics performance. As to the relationship between learners' academic well-being in terms of math self-concept, schoolwork engagement, and school burnout and mathematics performance: There is a strong positive and statistically significant correlation (r = 0.923; p-value <0.01) between math self-concept and performance in mathematics, implying that learners who have a high level of math self-concept tend to have high mathematics performance or as the learners' level of math self-concept, the better their mathematics performance. Thus, the higher the learners' level of math self-concept, the better their mathematics performance. There is also a strong positive and statistically significant correlation (r = 0.965; p-value <0.01) between the learners' schoolwork engagement and mathematics performance, suggesting that learners who have a high level of school engagement tend to have high performance in mathematics or learners who have a low level in school engagement tend to have low mathematics performance. On the other hand, for school burnout, there is a strong negative and statistically significant correlation (r = -0.823; p-value

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<0.01) between the learners' school burnout and mathematics performance. It implies that as the learners' level of school burnout increases, mathematics performance tends to decrease or learners who have low levels of school burnout tend to have high mathematics performance.

Ayodele (2011) discovered a moderate positive correlation between self-concept and mathematics performance among Nigerian secondary students. Timmerman et al. (2017) conducted another study and observed a link between math self-concept and math achievement. This means that students who have a stronger belief in and better perceptions and attitudes of their own mathematical abilities and achievement perform better on constructive and automated math tasks. The majority of these studies support the belief that self-concept is important in academic achievement.

The aforementioned findings lend support to earlier research showing various relationships between well-being and academic performance, particularly in terms of how school burnout manifests itself in different ways. Salmela-Aro & Upadyaya (2014) discovered that adolescents' feelings of inadequacy at school and cynicism toward the purpose of school increased with lower academic achievement and school engagement. However, exhaustion has been observed in high-achieving and motivated students as well (Tuominen-Soini et al., 2012). Engagement in schoolwork has been shown to have a direct, beneficial impact on academic achievement and can be viewed as a crucial resource for students as they deal with various school-related demands. Additionally, the association between academic success and positive self-concept is widely established (Topham & Moller, 2011), particularly when it comes to achievement in particular academic domains (Denissen et al., 2007) (Guo et al., 2015b).

The relationship between the learners' academic well-being (i.e., math self-concept, school engagement, and school burnout) and educational aspirations was investigated using a correlation test. To assess data association, a scatter plot was also used. There is no linear relationship, it was discovered. As a result, the Spearman rank-order correlation test was used by the researchers. The relationship between academic well-being and its subscales, as well as educational aspirations, is shown in Table 7.

Table 6. Relationships between Learners' Academic Well Being and Mathematics Performance

Academic Well Being	Pearson r	Relationship	p-value
Mathematics self-concept	0.923**	Strong	0.000
Schoolwork Engagement	0.965**	Strong	0.000
School Burnout	-0.823**	Strong	0.000

^{**}Correlation is significant at 0.01 level (2-tailed). Strength of Relationship (Moore, Notz, and Flinger, 2013): r < 0.3 = none or very weak; 0.3 < r < 0.5 weak; 0.5 < r < 0.7 = moderate; r > 0.7 strong

Relationship between Learners' Academic Well Being and Educational Aspirations

As to the relationships between academic well-being with its subscales and educational aspirations (see Table 3), the results indicate a weak positive and significant relationship (rs = 0.405; p-value <0.01) between math self-concept and educational aspirations; a weak positive and significant correlation (rs = 0.391; p-value <0.01) between the learners' schoolwork engagement and mathematics performance; and a weak negative and statistically weak negative relationship (rs = -0.438; p-value <0.01) between school burnout and educational aspirations.

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According to a recent study, while school burnout negatively impacted educational goals indirectly through interest, it was also found that higher degrees of school burnout were directly linked to higher educational aspirations in girls. Additionally, it was shown that there was a positive correlation between students' interest in their academic work and their educational goals, demonstrating that this link was reciprocal.

Students are more inclined to engage in academic activities if they understand the value of engagement and success for their future, claims Denissen et al. (2007). According to studies by Eccles and Roeser (2009), engaged students not only desire to but also successfully finish higher education. Academic self-concept has also been demonstrated to be a significant predictor of educational and job choices, even when achievement is taken into account.

Table 7. Relationship between Learners' Academic Well Being and Educational Aspirations

Academic Well Being	rs	p-value	Relationship
Mathematics self-concept	0.405**	0.000	Weak
Schoolwork Engagement	0.379**	0.000	Weak
School Burn out	-0.438**	0.000	Weak

^{**}Correlation is significant at 0.01 level (2-tailed). Strength of Relationship (Moore, Notz, and Flinger, 2013): r < 0.3 = none or very weak; 0.3 < r < 0.5 < weak; 0.5 < r < 0.7 = moderate; r > = strong

Relationship between Learners' Mathematics Performance and Educational Aspirations

In terms of the relationship between learners' academic performance in mathematics and educational aspirations (refer to Table 8), there is a weak positive and statistically significant relationship (rs = 0.412; p<0.01).

Even after accounting for overall academic achievement, Shapka et al. (2006) found that students with low math grades appeared to have lower professional aspirations than average- and high-performing students. They also found an association between early math performance, gender, and career objectives in ninth-grade students. Even after controlling for significant motivational and well-being variables, including curiosity, academic self-concept, and school fatigue, math achievement was still a strong predictor of educational aspirations (Parker et al., 2014) (Guo et al., 2015a, b) (Korhonen et al., 2016). Additionally, math performance predicted educational goals even after controlling the pertinent motivational and well-being components, including significance, academic self-concept, and school burnout.

Table 8. Relationship between Learners' Mathematics Performance and Educational Aspirations

Variables	rs	p-value	Relationship
Academic performance vs.	0.412**	0.000	Woolr
Educational Aspiration	0.412	0.000	Weak

^{**}Correlation is significant at 0.01 level (2-tailed). Strength of Relationship (Moore, Notz, and Flinger, 2013): r < 0.3 = none or very weak; 0.3 < r < 0.5 < r < 0.7 = moderate; r > = strong

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CONCLUSION

There was a strong positive and statistically significant correlation between math self-concept and performance in mathematics. As to schoolwork engagement, there is a significant relationship between schoolwork engagement and school burnout in the mathematics performance of the learners. Further, there is likewise a significant relationship between student's academic well-being to their educational aspirations. Hence, in order to maximize their participation in the subject, subject teachers may conduct fun activities so that the learners' school burnout may be reduced and their school engagement may be increased.

School Administrators may conduct a need assessment inventory regarding the immediate needs of the learners, especially those who are suffering from school burnout and low school engagement. Based on the results, proper workshops and calibration of teachers' styles can opt.

Engage concerned stakeholders, such as para teachers, on the different effective ways of handling school burnout or depression by focusing on the importance of building proper academic self-concept and perspective. Finally, further may be conducted with a larger scope, including different grade levels of learners, adopting a longitudinal, mixed-method research design to know the effects between academic well-being to mathematics performance

LIMITATION & FURTHER RESEARCH

This research was carried out at the Integrated School of Lawa from August 2019 to March 2020. This study's respondents were the entire population of Grade 10 students at the school. This study attempted to assess the major variables, namely the students' academic well-being, educational aspirations, and mathematics performance, as well as how each variable affects the others.

The limitations of the study are those aspects of design or methodology that impacted or influenced the interpretation of your research findings. Further research should indicate the number of gaps in our knowledge that result from our findings, or it should extend and test the research further.

REFERENCES

- Abubakar, A. M., A. M., Abubakar, Y., Itse J. D.,(2017). Students' engagement in relationship to academic performance. *Journal of Education and Social Sciences*, Vol. 8, Issue 1
- Albano Jr., E.(2019, September). NAT Scores at Low Mastery Level.The Manila Times. Retrieved from https://www.manilatimes.net/2019/09/ 26/campus-press/grade-6-nat-scores-at-low-mastery-level/621772
- Arens, A. K., and Hasselhorn, M. (2015). Differentiation of competence and affect self-perceptions in elementary school students: extending empirical evidence. *European Journal of Psychology of Education*, vol. 30, pp. 405–419. doi: 10.1007/s10212-015-0247-8
- Ashby, J. S., and Schoon, I. (2012). Living the dream? A qualitative retrospective study exploring the role of adolescent aspirations across the lifespan. *Developmental Psychology*, vol. 48, pp.1694–1706. doi: 10.1037/a0027297
- Attard, C.(2012). Engagement with mathematics: What does it mean and what does it look like? *Australian Primary Mathematics Classroom*, vol. 17 no. 1

Mathematics Performance, Academic well-being, and Educational Aspirations of Junior High School Students

- Balbalosa, J. F. (2010). Factors affecting the mathematics performance of laboratory high school of Laguna State Polytechnic University academic year 2009 2010. (Unpublished master's thesis). Laguna State Polytechnic University, Siniloan, Laguna.
- Bakker, A. B., Schaufeli, W. B., Demerouti, E., Janssen, P. P. M., Hulst, R. V. D., and Brouwer, J. (2000).

 Using equity theory to examine the difference between burnout and depression.

 Researchgate, vol.13, pp. 247–268.

 doi: 10.1080/10615800008549265
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior Human Decision Processes*, vol. 50,pp. 248–287. doi: 10.1016/0749-5978(91)90022-
- Bask, M., & Salmela-Aro, K. (2013). Burned out to drop out: exploring the relationship between school burnout and school dropout. *European Journal of Psychology of Education*, vol. 28, pp. 511–528. doi: 10.1007/s10212-012-0126-5
- Cadime, I., Pinto, A. M., Lima, S., Rego, S., Pereira, J., and Ribeiro, I. (2016). Well-being and academic achievement in secondary school pupils: the unique effects of burnout and engagement. *Journal of Adolescence*, vol.53, 169–179. doi: 10.1016/j.adolescence.
- Chow, A., Eccles, J. S., & Salmela-Aro, K. (2012). Task value profiles across subjects and aspirations to physical and IT-related sciences in the United Statesand Finland. *Developmental Psychology*, vol. 48, pp. 1612–1628. doi: 10.1037/a0030194
- Daniels, L. M., Haynes, T. L., Stupnisky, R. H., Perry, R. P., Newall, N. E., and Pekrun, R. (2008). Individual differences in achievement goals: a longitudinal study of cognitive, emotional, and achievement outcomes. *Contemporary Educational Psychology*, vol. 33, pp. 584–608. doi.org/10.1016/j.cedpsych.2007.08.002
- Denissen, J. J., Zarrett, N. R., & Eccles, J. S. (2007). I like to do it, I'm able, and I know I am: longitudinal couplings between domain-specific achievement, selfconcept, and interest. *Child Development*, vol. 78, pp. 430–447. doi: 10.1111/j.1467-8624.2007.01007.x
- Department of Education Order Order 73, s. (2012). Guidelines on the assessment and rating of learning outcomes under the K to 12 Basic Education Curriculum. Retrieved on June 22, 2020 from http://goo.gl/zpQll3.
- Dotterer, A. M., & Lowe, K. (2011). Classroom Context, School Engagement, and Academic Achievement in Early Adolescence. *Journal of Youth and Adolescence*, 40(12), 1649-1660. doi: 10.1007/s10964-011-9647-5
- Duru, E., Duru, S., & Balkis, M. (2014). Analysis of Relationships among Burnout, Academic
- Achievement, and Self-regulation. Educational Sciences: Theory & Practice. https://www.researchgate.net/publication/265550284 Analysis of Relationships among Burnout Academic Achievement and Self-regulation
- Eccles, J. S., & Roeser, R. W. (2009). Schools, motivation, and stage-environment fit. *Handbook of Adolescent Psychology*, pp. 404–434. doi: 10.1002/9780470479193.adlpsy001013
- Fiorilli, C., De Stasio, S., Di Chiacchio, C., Pepe, A., and Salmela-Aro, K. (2017). School burnout, depressive symptoms and engagement: their combined effect on student achievement. *International Journal of Educational Research*, vol. 84, pp. 1–12. doi: 10.1016/j.ijer.2017.04.001

Mathematics Performance, Academic well-being, and Educational Aspirations of Junior High School Students

- Garg, R., Melanson, S., & Levin, E. (2007). Educational aspirations of male and female adolescents from single-parent and two biological parent families: a comparison of influential factors. *Journal of Youth and Adolescence*, Vol. 36, pp. 1010–1023. doi: 10.1007/s10964-006-9137-3
- Gerhard, G., & Burn, H. E. (2014). Effective Engagement Strategies for Non-Tenure-Track Faculty in Precollege Mathematics Reform in Community Colleges. *Community College Journal of Research and Practice*, 38(2-3), 208-
- Guo, J., Marsh, H. W., Morin, A. J. S., Parker, P. D., and Kaur, G. (2015a). Directionality of the associations of high school expectancy-value, aspirations, and attainment: a longitudinal study. *American Educational Research*, vol. 52, pp. 371–402.doi: 10.3102/0002831214565786
- Guo, J., Marsh, H. W., Parker, P. D., Morin, A. J. S., and Yeung, A. S. (2015b). Expectancy-value in mathematics, gender and socioeconomic background as predictors of achievement and aspirations: a multi-cohort study. Learning Individual Differences, vol. 37, 161–168. doi: 10.1016/j.lindif.2015.01.008
- Guo, J., Nagengast, B., Marsh, H. W., Kelava, A., Gaspard, H., Brandt, H., et al.(2016). Probing the unique contributions of self-concept, task values, and their interactions using multiple value facets and multiple academic outcomes. *SAGE Journal*, vol. 2, pp. 1–20. doi: 10.1177/2332858415626884
- Hill, N. E.,& Wang, M.-T. (2015). From middle school to college: developing aspirations, promoting engagement, and indirect pathways from parenting to post high school enrollment. *Developmental Psychology*, vol. 51, pp. 224–235. doi: 10.1037/a0038367
- Huppert, F. A., So, T. T. (2013). Flourishing across Europe: application of a new conceptual framework for defining well-being. Social Indicators Research, vol. 110, pp. 837–861.doi: 10.1007/s11205-011-9966-7
- Khalaila, R. (2015). The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students: Mediating and moderating effects. *Nurse Education Today*, *35*, 432-438. doi:10.1016/j.nedt.2014.11.001
- Khattab, N. (2015). Students' aspirations, expectations and school achievement: what really matters?. British Educational Research Association, Volume 41 (Issue5). https://doi.org/10.1002/berj.3171
- Korhonen, J., Linnanmäki, K., and Aunio, P. (2014). Learning difficulties, academic well-being and educational dropout: a person-centered approach. Science Direct learning and Instruction. vol. 31, pp. 1–10. doi: 10.1016/j.lindif.2013.12.011
- Korhonen, J., Tapola, A., Linnanmäki, K., and Aunio, P. (2016). Gendered pathways to educational aspirations: the role of academic self-concept, school burnout, achievement and interest in mathematics and reading. *Science Direct learning and Instruction*, vol. 46, pp. 21–33. doi:10.1016/j.learninstruc.2016.08.006
- Lipnevich, A.A., MacCann, C., Krumm, S., Burrus, J., & Roberts, R.D. (2011). Mathematics attitudes and mathematics outcomes of U.S. and Belarusian Middle School Students. Journal of Educational Psychology, 103(1), 105-118. doi: 10.1037/a0021949

Mathematics Performance, Academic well-being, and Educational Aspirations of Junior High School Students

- Luo, W., Hogan, D., Tan, L., Kaur, B., Ng, P., & Chan, M. (2014). Self-construal and students' math self-concept, anxiety and achievement: An examination of achievement goals as mediators. https://doi.org/10.1111/ajsp.12058
- Marsh, H. W. (1992). Self Description Questionnaire (SDQ) III: A Theoretical and Empirical Basis for the Measurement of Multiple Dimensions of Late Adolescent Self-Concept. *School of Education and Language Studies*, vol 82, pp. 623-636.
- Marsh, H. W., & Martin, A. J. (2010). Academic self-concept and academic achievement: Relations and causal ordering. *British Journal of Educational Psychology*, 81, 59-77. doi:10.1348/000709910X503501
- Mau, W.-C., & Bikos, L. H. (2000). Educational and vocational aspirations of minority and female students: A longitudinal study. Journal of Counseling & Development, 78(2), 186–194. https://doi.org/10.1002/j.1556-6676.2000.tb02577.x
- Maslach, C. & Jackson, S. (1981). The measurement of experienced burnout. Journal of Organizational Behavior, Volume 2, Issue 2 p. 99-113. https://doi.org/10.1002/job.4030020205
- Morales, M. D.; & Sapin, S. B. (2020). Journey of School Principals in Coping the Demands and Challenges of School Development. Universal Journal of Educational Research, 8(11B), 6297 6306. DOI: 10.13189/ujer.2020.082269
- Nagengast, B., and Marsh, H. W. (2012). Big fish in little ponds aspire more: mediation and cross-cultural generalizability of school-average ability effects on self-concept and career aspirations in science. *Journal of Educational Psychology*, vol.104, pp.1033–1053.doi: 10.1037/a0027697
- Nagy, William & Berninger, Virginia & Abbott, Robert. (2006). Contributions of Morphology Beyond Phonology to Literacy Outcomes of Upper Elementary and Middle-School Students.. Journal of Educational Psychology J EDUC PSYCHOL. 98. 10.1037/0022-0663.98.1.134.
- Parhiala, P., Torppa, M., Vasalampi, K., Eklund, K., Poikkeus, A.-M., and Aro, T. (2018). Profiles of school motivation and emotional well-being among adolescents: associations with math and reading performance. *Science Direct Learning and Individividual Differences*, vol. 61, 196–204. doi: 10.1016/j.lindif.2017.12.003
- Parker, P., Nagy, G., Trautwein, U., and Lüdtke, O. (2014). Predicting career aspirations and university majors from academic ability and self-concept: a longitudinal application of the internal-external frame of reference model. *ResearchGate*, pp. 224–246. doi: 10.1017/CB09781139128933.015
- Parker, P. D., Marsh, H. W., Ciarrochi, J., Marshall, S., and Abduljabbar, A. S. (2013). Juxtaposing math self-efficacy and self-concept as predictors of long term achievement outcomes. *Educational Psychology*, pp. 34, 29–48. doi: 10.1080/01443410.2013.797339
- Parker, P. D., Schoon, I., Tsai, Y.-M., Nagy, G., Trautwein, U., and Eccles, J. S. (2012). Achievement, agency, gender, and socioeconomic background as predictors of postschool choices: a multicontext study. *Developmental Psychology*, vol. pp. 48, 1629–1642. doi: 10.1037/a0029167
- Patena, Annalie & Dinglasan, Belle. (2013). Students Performance on Departmental Examination: Basis for Math Intervention Program. SSRN Electronic Journal. 10.2139/ssrn.2276044.

Mathematics Performance, Academic well-being, and Educational Aspirations of Junior High School Students

- Salmela-Aro, K., & Upadyaya, K. (2014). School burnout and engagement in the context of demands-resources model. Br. *Journal of Educational Psychology*, vol. 84, pp. 137–151.doi: 10.1111/bjep.12018
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study. *Journal of Organizational Behavior*, vol. 25, pp. 293–315. doi: 10.1002/job.248
- Schaufeli, W. B., Martínez, I. M., Pinto, A. M., Salanova, M., and Bakker, A. B. (2002). Burnout and engagement in university students: a cross-national study. *Journal of Cross Cultural Psychology*, vol. 33, pp. 464–481. doi: 10.1177/0022022102033005003
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement of Work Engagement With a Short Questionnaire: A Cross-National Study. Educational and Psychological Measurement, 66(4), 701-716. https://doi.org/10.1177/0013164405282471
- SEI-DOST & MATHTED, (2011). Framework for Philippine mathematics teacher education. Manila: SEI-DOST & MATHTED
- Shapka, J. D., Domene, J. F., and Keating, D. P. (2006). Trajectories of career aspirations through adolescence and young adulthood: early math achievement as a critical filter. *Educational Research Evaluation*, vol.12, pp. 347–358. doi: 10.1080/138036106007
- Timmerman, H., Toll, S., and Van Luit, J., (2017). The relation between math self-concept, test and math anxiety, achievement motivation and math achievement in 12 to 14-year- old typically developing adolescents. *Psychology, Society & Education*, Vol. 9(1), pp. 89-103 Trebbels, M. (2015). The Transition at the End of Compulsory Full-Time Education: Educational and Future Career Aspirations for Native and Migrant Students. *Springer*. doi: 10.1007/978-3-658-06241-5
- TIMSS (2002). Trends in International Mathematics and Science Study (TIMSS). https://nces.ed.gov/pubsearch/getpubcats.asp?sid=073
- Trebbels, M. (2015). The transition at the end of compulsory full-time education (pp.37-45). $D0I:10.1007/978-3-658-06241-5_3$
- Topham, P., & Moller, N. (2011). New students' psychological well-being and its relation to first year academic performance in a UK university. Counselling & Psychotherapy Research, 11(3), 196–203. https://doi.org/10.1080/14733145.2010.519043
- Tuominen-Soini, H., & Salmela-Aro, K. (2014). Schoolwork engagement and burnout among Finnish high school students and young adults: profiles, progressions, and educational outcomes. Developmental Psychology. vol. 50, pp. 649–662. doi: 10.1037/a0033898
- Tuominen-Soini, H., Salmela-Aro, K., and Niemivirta, M. (2012). Achievement goal orientations and academic well-being across the transition to upper secondary education. *Science Direct Learning Individividual Differences*, vol. 22, pp. 290–305. doi: 10.1016/j.lindif.2012.01.002
- Valentine, J. C., DuBois, D. L., and Cooper, H. (2004). The relation between selfbeliefs and academic achievement: a meta-analytic review. *Educational Psychology*, vol. 39, pp. 111–133. doi: 10.1207/s15326985ep3902_3

Mathematics Performance, Academic well-being, and Educational Aspirations of Junior High School Students

- Vasalampi, K., Salmela-Aro, K., and Nurmi, J.-E. (2009). Adolescents' selfconcordance, school engagement, and burnout predict their educational trajectories. *European Psychology*, vol.14, pp. 332–341. doi: 10.1027/1016-9040.14.4.332
- Watt, H. M., Shapka, J. D., Morris, Z. A., Durik, A. M., Keating, D. P., and Eccles, J. S. (2012). Gendered motivational processes affecting high school mathematics participation, educational aspirations, and career plans: a comparison of samples from Australia, Canada, and the United States. *Developmental Psychology*, vol.48, pp.1594–1611. doi: 10.1037/a0027838
- Widlund, A., Tuominen, H., & Korhonen, J. (2018). Academic Well-Being, Mathematics Performance, and Educational Aspirations in Lower Secondary Education: Changes within a School Year. Front. Psychol., 13 March 2018 Sec. Educational Psychology https://doi.org/10.3389/fpsyg.2018.00297
- Wonglorsaichona B., & Wongwanichb, S. (2014). The Influence of Students School Engagement on Learning Achievement: A Structural Equation Modeling Analysis. *Procedia Social and Behavioral Sciences*, 116, 1748-1755
- Yisak Tafere (2015).Educational Aspirations of Students in Developing World: Evidence from Ethiopia, Aspirations in Action. Retrieved August 1, 2020, from http://www.researchgate.net/publication/272182396