

Perseverance, Self- Efficacy, and Performance of Learners in Mathematics

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ABSTRACT

This study investigated the academic performance of the Alternative Learning System(ALS) learners and examined its relationship with perseverance and self-efficacy during the academic year 2026-2027. Amidst evolving educational landscapes, non- traditional learners frequently encounter unique socio- economic and personal hurdles that can impact their educational outcomes. Employing a descriptive- correlation research design, this study gathered data from 95 ALS learner. Data collection involve the administration of standardized instruments to evaluate the participant's level of academic perseverance and self-efficacy, alongside their mathematics assessment scores to present academic performance. The gathered data were analyzed using descriptive and inferential statistics; specifically, the mean and standard deviation were utilized to establish the levels o psychological variables, while Spearman's rank-order (rho) was applied to determine the direction and strength of the relationships among the variables. The descriptive findings reveal that despite the struggles and instructional difficulties throughout their academic journeys, the ALS learners demonstrated a very high level of academic perseverance with ($m=4.44$, $sd=0.51$) and a high level of self-efficacy with ($m=3.93$, $sd=0.52$). Furthermore, the inferential analysis demonstrated a statistically significant positive relationship between both academic perseverance and self-efficacy and the learners' mathematics performance. These results indicate that heightened levels of internal motivation, grit, and self-belief are critical drivers of cognitive success and academic achievement frameworks. Ultimately, the study concludes that perseverance and self-efficacy linked to academic success. Based on these findings, it is recommended that ALS implementer s, policymakers and curriculum designers integrate psycho-social interventions and efficacy-building strategies into non-formal education programs to further fortify learners' psychological resilience and sustain their academic performance.

INTRODUCTION

This chapter presents the background of the study, the theoretical and conceptual frameworks, the statement of the problem, the hypothesis of the study, the significance of the study, the scope and limitations of the study, and definitions of the terms used in the study.

Academic performance is not the only determinant in one's success; several factors are worth considering, including perseverance, self-efficacy, and performance in mathematics. According to Michael Sandel's landmark 2020 book, the Tyranny of Merit: What's become of common good? Sandel's argue that modern society Sandel argues that modern society has turned academic credentials into the ultimate metric of human worth. This creates a system where the winners believe their success is entirely their own doing and the losers feel their failure is a personal moral defect. There are many things to consider, these are perseverance, self-efficacy and performance in mathematics. Perseverance is the ability to maintain continuous effort despite encountering difficulties. In the subjects such as mathematics and science, individuals must possess this quality in order to succeed. Another critical factor is self- efficacy, which refers to an individual's belief in their capacity to execute behaviors necessary to produce specific performance attainments. Finally, mathematics performance reflects the ability to analyze, solve and logically understand mathematical problems. True education is not an overnight occurrence but a lifelong exercise in existential stamina. In his publication My Philosophy of Education the Success of Education Stems from Persistence and Reflection, it is argued that academic metrics

alone fail to cultivate functional human agency. Success is redefined as a long-term commitment to self-correction and continuous cognitive endurance (Dr. Zang, 2023).

Learners with high perseverance and self-efficacy tend to be successful in both their academic pursuits and future careers. For instance, students advance tracks within formal schooling who exhibit strong self-efficacy and maintain confidence in passing examinations and securing scholarships regardless of financial constraints. Recent studies published via platforms like Frontiers in Education build upon agentic realism, distinguish between generalized competence and outcome-based self-efficacy. While general intellect helps initially, task-specific self-efficacy dictates whether an individual will actively strategize or abandon goals when facing unexpected adversity (Contemporary Social Cognitive Philosophers, 2024–2026).

Conversely, learners placed in the lower tracks may demonstrate low perseverance, aiming merely to pass rather than excel. Many feel inferior to peers in higher tracks or perceive that the teachers devote less attention and opportunity to them, which can diminish their self-esteem and self-efficacy. This dynamic also extends to non-formal education systems like the Alternative Learning System (ALS), which caters to out-of-school youth, adult learners returning to education, and students who faced difficulties or trauma in traditional schooling environments.

Accordingly, the researcher examines whether Alternative Learning System (ALS) learners' perseverance and self-efficacy share significant relationship with their academic performance in mathematics.

METHODOLOGY

This study aims to determine the relationship among perseverance, self-efficacy and academic performance in Mathematics among ALS learners. A descriptive correlation research design was used because it allows for the examination of relationships between variables or phenomena. According to Sandra L Siedlecki (2020) descriptive research design is a structured, systematic quantitative approach used to observe, measure, and describe variables of interest rather than test a hypothesis. Descriptive research is significant in educational settings, where surveys are widely investigative tools to collect data and address educational questions (Gay et al., 2021).

The respondents of the study were the 95 secondary-level Alternative Learning System (ALS) learners in San Enrique, Negros Island Region, enrolled during the year 2026-2027. Because total enumeration was utilized, the sample size was not computed, and no sampling technique was applied.

The study utilized three research instruments. The first measured the respondents' level of perseverance, the second assessed their level of self-efficacy, and the third evaluated their academic performance. To measure perseverance, the researcher used a standardized 20-item questionnaire adapted from the Styk, Zmorzynski and Samardakiewicz. A 5 point Likert scale was employed to interpret the responses, ranging from 5 ("Very much like me") to 1 ("Not like me at all").

To determine the respondents' level of self-efficacy, the researcher will use a standardized questionnaire adopted from Gaumer Erickson, A. S., & Noonan. This 20-item questionnaire measures the self-efficacy of ALS learners, utilizing a 5-point Likert scale ranging from 5 ("Very much like me") to 1 ("Not like me at all"). The item compositions of both academic perseverance and self-efficacy questionnaires are detailed below.

The questionnaire of perseverance comprises of 20 positive numbers addressing the learner's strength and the grit the learner has to complete the task and to achieve his/her goal. For self-efficacy there are 20 items of whom 13 are positively worded and 7 are negative worded. The negative items would be scored reverse than the positive numbers. To assess the level of academic performance in mathematics, a 25 item test was adapted from the Accreditation and Equivalency (A&E) test provided by the Department of Bureau of Education Assessment (BEA). The scores were interpreted using the numerical scale and descriptive equivalents: 25-21 (Outstanding), 20-16 (Very satisfactory), 15-11 (Satisfactory), 10-6 (Fairly satisfactory), and 5-0 (Poor).

RESULTS AND DISCUSSIONS

Level of perseverance of ALS learners

Table 1. Level of Perseverance of the Respondents.

Statements	Mean	SD	Interpretation
1. The time needed to complete a task does not reduce my persistence in achieving a goal, even when its achievement is very distant.	4.60	0.82	Very High
2. Rather, I'm known to be able to get through adversity to reach my goal.	4.42	0.69	Very High
3. I have no problem with perseverance, even when the goal is far away in time, such as school graduation or a course competition.	4.61	0.69	Very High
4. I perform tasks as long as it's needed, even if it takes months or years.	4.33	0.82	Very High
5. I finish what I've started.	4.14	1.45	Very High
6. My friends would indicate that it is typical for me to spend a lot of time trying to achieve a goal.	4.58	0.91	Very High
7. If I have a problem to solve, I will work so long to fix it, whether it succeeds or it doesn't.	4.47	0.77	Very High
8. I am persistent. I never give up.	4.41	0.86	Very High
9. Failures do not discourage me. I don't give up easily.	4.72	0.58	Very High
10. I feel internally, I need to finish what I have started.	4.67	0.79	Very High
11. If I decide to do something, I keep it going until I reach my goal.	4.28	1.11	Very High
12. I am persistent, but it is my inner feeling that really makes me continue to act.	4.82	0.50	Very High
13. When I decide to do something, and I fail-I do everything possible to do it and reach the goal.	3.96	1.34	High
14. Usually, I manage to overcome failures to meet an important challenge.	4.15	1.03	High
15. I always feel obligated to finish what I started.	4.08	1.18	High
16. Usually, I can be persistent for a long time, regardless of my goal.	4.69	0.55	Very High
17. When studying for an important test, if I have decided to repeat a topic I do it until I finish, I do not get distracted.	4.61	0.75	Very High
18. Usually, I am persistent in achieving my goals, the goal is always the most important for me, time needed doesn't matter.	4.34	0.82	Very High
19. I tend to go about a task until it is completed. Time does not matter but the goal matters.	4.24	1.16	Very High
20. I often quit quickly when something went wrong.	4.63	0.67	Very High
Perseverance Overall Mean	4.44	0.51	Very High

Legend: (4.21-5.00)-Very High; (3.41-4.20)-High; (2.61-3.40)-Moderate; (1.81-2.60)-Low; (1.00-1.80)-Very Low

Table 1 reveals that the ALS learners of San Enrique has as a very high level of academic perseverance having ($m=4.44$, $sd= 0.51$). This implies that the ALS Learners of San Enrique have very high perseverance and continue to exert effort to do or achieve something despite financial difficulties, failure, or opposition. Thus, perseverance

is one of the key points in one's success. This conforms with Angela Duckworth's perseverance(grit), perseverance is not just toughness but the ability to view life as a marathon rather than a sprint.

The highest- rated indicator was failures do not discourage me. I don't give up easily ($m=4.72$, $sd= 0.58$) followed by usually, I can be persistent for a long time, regardless of my goal ($m=4.69$, $sd= 0.55$). This conforms to Carol Dweck (2020) that learner perseverance depends heavily on mindset. Students with a growth mindset embrace challenges and persist after failure because they believe abilities grow through effort, while praising the learning process rather than innate intelligence fosters true resilience.

However, I always feel obligated to finish what I started ($m=4.08$, $sd= 1.18$) and when I decide to do something, I fail I do everything possible to do it and reach the goal ($m=3.96$, $sd= 1.34$) receive a comparatively low rating, although both remained within high ratings. These findings suggest that not all aspects of perseverance were strongly innate in all learners. This is where the study of Lindsay Prendergast, Piper Lee, and Amanda Brueggeman (2026) comes in "Habits for Resilient Learners" offer an actionable framework that educators can follow to support student resilience, an essential skill to help students excel under academic pressure, adapt to challenges, small and large, and persevere in a complex learning environment. That through extrinsic motivation the learners can obtain high perseverance. That through extrinsic motivation the learners can obtain high perseverance.

Level of self- efficacy of ALS learners

Table 2. Level of Self-Efficacy of the Respondents.

Statements	Mean	SD	Interpretation
1. I can learn any skill if I work hard and practice.	4.07	0.80	High
2. Once I've decided to do something, I keep trying, even if it is harder than I thought.	3.69	1.08	High
3. I believe that I can make my brain stronger.	4.35	0.90	Very High
4. I can always get better, even if I am really good at something.	3.87	1.01	High
5. I think people should realize when they aren't good at something and quit.	3.66	1.04	High
6. I see making mistakes as a normal part of learning.	4.05	0.84	High
7. When I am told that I didn't do well on something, I try even harder to learn it.	3.86	1.10	High
8. I want to quit when I'm told I made a mistake.	3.48	1.03	High
9. When something is hard, I focus on the progress that I have made.	3.89	1.02	High
10. When a task sounds hard, I tell myself that I can do hard things.	4.03	1.12	High
11. It helps me to learn from other people's stories of success.	4.03	1.04	High
12. When starting something hard, I think about my past successes.	3.84	0.94	High
13. Sometimes I give up when I'm afraid I can't do something.	3.91	1.11	High
14. When I am having trouble learning a new skill, I get advice from people I know.	4.34	0.78	Very High
15. When I hear about how others overcame difficulties, I feel like I can succeed too.	4.07	1.04	High
16. I can calm myself down when I'm anxious about something.	3.83	1.10	High
17. I use feedback from others to get better.			

	3.77	1.13	High
18. When given a choice, I usually take the easiest option.	3.72	1.06	High
19. I like to challenge myself to learn new things.	4.08	1.15	High
20. When I am frustrated, I take deep breaths to help me calm down.	4.01	1.06	High
Self- efficacy Overall Mean	3.93	0.52	High

Legend: (4.21-5.00)-Very High; (3.41-4.20)-High; (2.61-3.40)-Moderate; (1.81-2.60)-Low; (1.00-1.80)-Very Low

Table 2 reveals that the ALS Learners of San Enrique have and was interpreted as a high level of academic Self-Efficacy having ($m=3.93$, $sd = 0.52$). This implies that the ALS Learners of San Enrique have high self- efficacy which reflects that they have the confidence in their ability to exert control over their own motivation, behavior, and social environment. Just like Woolfolk (2023) explained that self- efficacy refers to an individual's knowledge of their own ability to complete a particular task without the need to compare it with the abilities of others.

The highest- rated indicator was I believe that I can make my brain stronger ($m=4.35$, $sd= 0.90$) followed by when I am having trouble learning a new skill, I get advice from people I know ($m=4.34$, $sd= 0.78$). This conforms to Educator Kathy Kolbe, that belief in innate abilities means valuing one's particular set of cognitive strengths. It also involves determination and perseverance to overcome obstacles that would interfere with utilizing those innate abilities to achieve goals. The more they believe in their self the more they can achieve anything.

This also conforms to Woolfolk (2023) that self-efficacy refers to an individual's knowledge of their own ability to complete a particular task without the need to compare it with the abilities of others.

However, I think people should realize when they aren't good at something and quit ($m=3.66$, $sd= 1.04$) and I want to quit when I'm told I made a mistake ($m= 3.48$, $sd= 1.03$) receive a comparatively low rating, although both remained within high ratings. These findings suggest that not all aspects of self- efficacy were strongly innate in all learners. But through continues teaching and having training's that could add to the knowledge and abilities of the learners can obtain high self- efficacy.

This is consistent with Educator Kathy Kolbe view and belief in one's innate abilities means valuing one's particular set of cognitive strength.

Level of Academic Performance of ALS Learners

Table 3. Level of Performance of the Students in Mathematics.

Level of Performance in Mathematics	f	Mean	SD	Interpretation
Outstanding	1	12.42	4.53	Satisfactory
Very Satisfactory	12			
Satisfactory	9			
Fairly Satisfactory	4			
Poor	29			
Very Poor	40			
Total	95			

Legend: (25-21)-Outstanding; (20-16)-Very Satisfactory; (15-11)-Satisfactory; (10- 6)-Fairly Satisfactory; (5-0)-Poor

Table 3 reveals that ALS Learners of San Enrique performance in mathematics was interpreted as a satisfactory level of academic performance having ($m=12.42$, $sd= 4.53$).

This implies that the ALS Learners of San Enrique average level of academic performance, which indicates that they have difficulty in mathematics.

According to Niss and Hogart (2024), that math is a difficult subject yet, the academic performance is not merely by rote calculation, but as an insightful readiness to act in mathematical situations. Learners continue to show strengths in basic procedural execution, but struggle with cognitive phases of mathematics.

This may apply to ALS learners, some of whom have stopped their academics for some time, due to lack of resources and some are orphans. They are dropouts because they have done something that they have regretted.

Relationship between Perseverance and Academic Performance of ALS Learners

Table 4. Relationship between Perseverance and Performance in Mathematics.

Variable	Test Statistics (r_s)	p-value	Decision for H_0	Interpretation
Perseverance vs.	0.379**	<.001	Reject H_0	Significant
Performance in Mathematics				

As presented in table 4, the correlation analysis yielded a computed Spearman rank correlation coefficient of $r_s=0.379$ with a p value of 0.001. Because the computed value exceeds the critical tabular value at the chosen level of significance, the null hypothesis is rejected. This indicates a statistically significant positive relationship between the level of perseverance and the academic performance in mathematics among the San Enrique Alternative Learning System (ALS) learners. Consequently. The result reveal that the academic performance in mathematics of San Enrique ALS learners is significantly associated with their level of perseverance.

The result conforms to the study of Katariina Salmela-Aro that the perseverance of effort (a core part of grit) strongly predicts later school achievement and engagement. That the learners that do not give up have a higher chance for success. In other words, determination and perseverance helped learners succeed in school and maintain higher grades throughout their academic careers.

Relationship between self- efficacy and Academic Performance of ALS learners

Table 5. Relationship between the Self-Efficacy and Performance in Mathematics.

Variable	Test Statistics (r_s)	p-value	Decision for H_0	Interpretation
Self-Efficacy vs.	0.263*	.010	Reject H_0	Significant
Performance in Mathematics				

As shown in the table 5, the correlation analysis yielded a computed Spearman rank correlation coefficient of $r_s= 0.263$ with a p value of 0.010. because the computed value exceeds the critical tabular value at the chosen level of significance, the null hypothesis is rejected. This indicates a statistically significant positive relationship between the level of self-efficacy and the academic performance in mathematics among the San Enrique (ALS) learners. Consequently, the results reveal that the academic performance in mathematics of San Enrique ALS learners is significantly associated with their level of self-efficacy.

The results of the study are consistent with the study of (Shao & Kang, 2022) that self-efficacy and academic resilience sequentially mediate the relationship between peer relationships and learning engagement. High self-efficacy encourages students to engage more actively in learning, utilize higher-order thinking strategies, and ultimately achieve a better conceptual understanding.

CONCLUSIONS

Based on the findings of the study, the following conclusions were formulated:

The learners of ALS strive even though they have difficulties in life. They face the problems head-on and they persevere. The learners of Alternative Learning System overcome obstacles as long as they have a goal. The mistakes they made in the past drive them and make them stronger to face the present problems and struggles.

Due to the length of time that the learners have stopped schooling the level of mathematical and logical abilities have decreased.

They need to practice more and consider studying harder to achieve their goal. The performance of Alternative Learning System learner in mathematics has a significant relationship to their level of perseverance.

Even though some struggled to answer the test, yet they did not give up and finished all the items. The performance of the learner of Alternative Learning System in mathematics was associated by the level of self-efficacy. And even though they score average in the test they know that they have the ability to exceed the test scores they have before.

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