

# Pre-service Teachers' Adversity Quotient and Proficiency in English Language and Mathematics

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**Abstract** A descriptive-correlational research was conducted to assess the level of adversity quotient, Mathematics proficiency, and English language proficiency of 103 pre-service teachers in one State University in the Philippines. Stoltz' Adversity Quotient (AQ) questionnaire was adopted and modified which reported a high reliability index (Cronbach alpha = 0.93). The researcher also used the content-validated mathematics and English Language proficiency tests. Descriptive statistics and Pearson correlation coefficient were used as statistical tools. Most of the respondents are 19-22 year old female pre-service teachers. General elementary pre-service teachers outnumbered the pre-elementary majors. The full-implementation of K-12 program tempted pre-service teachers to pursue skill-based programs such as MAPEH and TLE. Pre-service teachers reported a good control and better ownership of adversity but less reach and endurance of such. Almost 73% of pre-service teachers performed poorly in mathematics and almost 54% obtained low scores in the English language proficiency test. There are inverse relations between control and mathematics proficiency and endurance, and mathematics proficiency. It means that even they have a higher control in adversity or lesser endurance of the adverse effect of difficulties, they do not guarantee better mathematics performance. At .05 level of significance, a negative correlation between these variables is evident. Since majority of the respondents performed poorly in Mathematics, an intervention program may be crafted and proposed in the College of Teacher Education. The existing Intensive English Language Proficiency program may be strengthened since it lessens the number of pre-service teachers who are low competent in this subject area.

**Keywords** Control, Ownership, Reach, Endurance, Proficiency

## 1. Introduction

English and mathematics competence is central to work and life; success in these subjects is linked to better life chances and greater achievement (The Education and Training Foundation, 2015). Learning English language and mathematics aims at helping students for real life purposes. Students need to use these subjects to become functional in professional, academic, and social settings. However, despite of the importance played by English language and mathematics competence in our increasingly technology - based workplace, Filipino students' proficiency in English and Mathematics is found to be declining. A recent language test result showed that the Philippines is no longer the top one English-speaking country in Asia. Likewise, students' dismal scores in Trends in International Mathematics and Science Studies (TIMSS) justified that Filipino learners are left behind in mathematics competence. This scenario brought up an alarming impact towards job-providing industries in and out of the country, and is currently driving the education sector to intensify the effort of providing an educational system that will improve student's mastery in English and Mathematics.

The College of Teacher Education (CTE) of the Laguna State Polytechnic University, Los Baños Campus, has institutionalized Intensive English Language Proficiency (IELP) in 2014 to equip Teacher Education students with necessary English Language skills needed in their chosen fields of specialization. This intervention program aims to help students in becoming critical and analytical in communicating with the use of English. As they reach the optimum level of their communicative ability, it is hoped that they will likely develop competence in other subject areas such as Mathematics.

Despite this initiative, no one can deny that students, including those from the College of Teacher Education, still encounter problems and challenges in English and mathematics subject. As English and mathematics

instructors for almost a decade now, it is a perennial observation that there are students who find difficulty in grammar, vocabulary, sentence construction, reading comprehension, and analysing and solving mathematics problem - fundamental skills that are much needed for pre-service teachers.

In order to deal with these academic problems, Adversity Quotient (AQ) comes into pivotal play. As defined by Paul Stoltz, Adversity Quotient is "the capacity of the person to deal with the adversities of his life. As such, it is the science of human resilience" (Stoltz, 1997, p.6). It is the measure of how people act in response from daily trials to great difficulties they experience in life. AQ describes how well people can face any adversity they encounter and how well they encounter it. AQ predicts who gives up and who prevails (Stoltz 1997).

Psychologists agree that a person's career success depends on their intelligence quotient (IQ), emotional quotient (EQ) and adversity quotient (AQ). When IQ is held constant, AQ plays an especially pivotal role (Luo, 2013).

Adversity Quotient (AQ) was developed by Dr. Paul Stoltz. It was a result of 19 years of research and 10 years of application. It was a major breakthrough in understanding what it takes to succeed (Stoltz, 1997). AQ was first introduced in Stoltz's book *Adversity Quotient: Turning Obstacles into Opportunities* in 1997. It is believed to be a better indicator in achieving success instead of Intelligence Quotient (IQ), education or even social skills.

The building blocks or foundation of AQ are Cognitive Psychology, Neurophysiology and Psychoneuroimmunology. With the integration of these three came AQ which resulted in the new understanding, measure and set of tools that can help enhance human efficiency with work, studies, and increase the probability of success in an individual's life. Adversity quotient has four dimensions which measures the AQ of an individual. These are Control, Ownership, Reach, and Endurance embodied in the acronym C.O.R.E.

Control is the degree to which one perceives can influence whatever happens next. It influences the direction of action, amount of effort, level of perseverance and resilience determines resilience, health, and tenacity. People with high score on control will have better control of any adverse situation they may encounter.

Ownership is how much one feels accountable to improve the adverse situation. This determines accountability, responsibility, action and engagement. People with high score on ownership will feel accountable of the situation they are in. They will take responsibility, learn from that experience and change strategy to try a new route and take action.

Reach is the degree to which one perceives an adversity will affect other aspects of their life. It determines burden and stress; it tends to have a cumulative effect. People with high reach scores see the adversity in a different view.

They do not allow the adversity to hinder other parts of their life. They believe adversity caters to only that particular situation and does not impact other aspects of life.

Endurance is the duration the individual perceives the adversity will last. It determines hope, optimism, and willingness to persevere. People with high endurance score find that adversities are temporary and believe that there is always a solution to overpower the adversity.

A high AQ leads to first-rate accomplishments, productivity, and creativity. It can help people maintain their health, vitality and happiness. As has been shown repeatedly, in a world filled with adversity, career success and life achievements are not just a product of IQ an EQ, they also depend on a person's AQ.

In the study of Maiquez, R., Preolco, A., Sausa, L. and Talatagod, K. (2015) which is titled as Predictive Ability of Emotional Intelligence and Adversity Quotient on Academic Performance, the multiple regression analysis had resulted in an insignificant relationship on both EI and AQ towards academic performance. Though insignificant, the small percent of probability could have been caused by another factor. With this, the researchers suggest that these two factors may be studied again by future researchers in a new angle.

Parvathy, U. and Praseeda, M. (2014) explored the relationship between adversity quotient and academic problems among student teachers. The value of correlation co-efficient obtained for adversity quotient and academic problems ( $r = -0.52$ , significant at 0,01 level) shows that the two variables are closely related. A person having the ability to overcome the adversities can easily solve or face any problem. It is to be noted that even after removing the influence of the variable self-esteem which is proved to be related to adversity quotient, there is a significant, substantial, negative relationship between academic problems and adversity quotient. When the score of adversity quotient is high, the score regarding academic problems is less among the students.

Bakare's (2013) study aimed to know the adversity quotients of his participants. He aimed at finding if there is a significant relationship between adversity quotient and academic performance. His study included age and gender as other actors that affect adversity quotient which was proven to be of no effect. He has shown that adversity quotient has a significant relationship with academic performance. As AQ increases, the academic performance of an individual also increases.

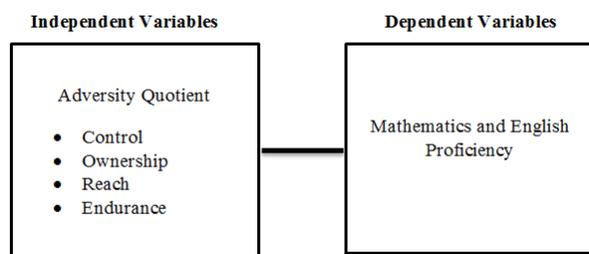
A study made by Praditsang and Hanafi (2013) examined the relationship between adversity quotient and learning behaviors while Cornista and Macasaet (2013) investigated the relationship between adversity quotient and achievement motivation. Both studies examined the adversity quotients of the participants and other factors, such as age and gender, which they assumed to have significant relationship with adversity quotient but was

proven to be of no effect. Majority of Praditsang and Hanafi's participants have high AQ scores while Cornista and Macasaet's had low AQ scores in majority. Both studies used fourth year students as participants. When comparing the CORE dimension scores of both studies, Praditsang and Hanafi's participants scored high on most dimensions except on Control while Cornista and Macasaet's participants scored average on Control while having below average scores on the rest, thus marking their difference in AQ scores.

AQ includes various components such as performance, motivation, empowerment, creativity, productivity, and learning. It provides the tools for improving how you respond and thus overall professional effectiveness. A person who has the capacity to face and overcome the adversities can attain his/her goals in life easily. A person should have the ability to respond to a particular adversity situation in an amicable way. Hence, this study aimed to determine pre-service teacher's adversity quotient in dealing with English and mathematics academic problems and its relation to their proficiency in these two subject areas.

## 2. Research Paradigm

Figure 1 depicts the conceptual framework that served as the direction of the study. The independent variables contain the adversity quotient of the pre-service teachers while the dependent variables include the technological standards of the pre-service teachers.



**Figure 1.** Research paradigm showing the relationship between variables

## 3. Statement of the Problem

This study primarily aimed to assess the level of adversity quotient, mathematics proficiency, and English language proficiency among pre-service teachers of the College of Teacher Education at the Laguna State Polytechnic University, Los Banos Campus, Academic Year 2016 - 2017.

Specifically, it sought answers to the following questions:

1. How can the pre-service teachers be described in terms of age, sex, and specialization?

2. What is the pre-service teacher's level of adversity quotient, mathematics proficiency, and English language proficiency?
3. Is there a significant relationship between pre-service teacher's level of adversity quotient and Mathematics proficiency?
4. Is there a significant relationship between pre-service teacher's level of adversity quotient and English language proficiency?

## 4. Methodology

The study used descriptive research design. It describes the behavior of a subject as fully and carefully as possible without influencing it in any way. In this type of research, the usual methodology is survey (Blay, 2013). Since this study summarizes or describes the characteristics (abilities, preferences, opinions, and perceptions) of individuals or groups which are under study and correlates these characteristics, descriptive-correlational research design was the most appropriate research approach to use.

There were one-hundred four (103) pre-service teachers in the College of Teacher Education students enrolled during the conduct of the study in 2017. Since total enumeration was applied as a sampling technique, all of them served as the respondents.

Adversity Quotient questionnaire was adopted from Paul Stoltz (1997). The researcher made a minor modification on this instrument and was validated by higher education professors who are experts in the field. After pilot testing, it reported a Cronbach alpha of 0.93 which can be interpreted as high reliability index.

Meanwhile, mathematics proficiency and English language proficiency tests were prepared based on table of specifications in the course to ensure its content validity. Pilot testing was done by administering the initial draft to 30 pre-service teachers who were not included in the study. After validation and revision, the final draft of the research instruments was administered to the respondents.

The collected data were tabulated and analyzed using frequency and percentage distribution, mean, standard deviation, and skewness. Best (1963) cited that the process of descriptive research goes beyond mere gathering and tabulation of data. It involves an element of interpretation of the meaning or significance of what is described, hence this study used Pearson  $r$  as an inferential statistics.

## 5. Findings

As shown in Figure 2, 81% of the pre-service teachers are at the age of a graduating University student which is about 19 – 22 years old. These respondents are able to finish their course in their desired time line. It can be noted that 19% of the pre-service teachers are older than the ideal ones. It implies that learning never ends, so an age to finish

a degree shouldn't have a limit also for those who really want to get the degree.

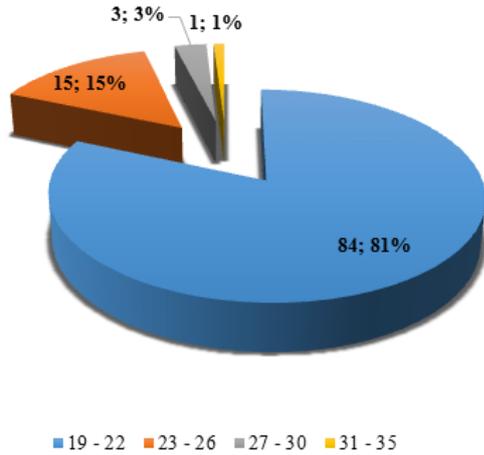


Figure 2. Age of pre-service teachers

It is reflected in Figure 3 that majority of the respondents are female pre-service teachers. For decades, teaching was one of the few fields open to women, and they still dominate the teaching job (Rich, 2014). Across the country, teaching is an overwhelmingly female profession, and in fact has become more so over time. The disparity is most pronounced in elementary and middle schools, where more than 80 percent of teachers are women.

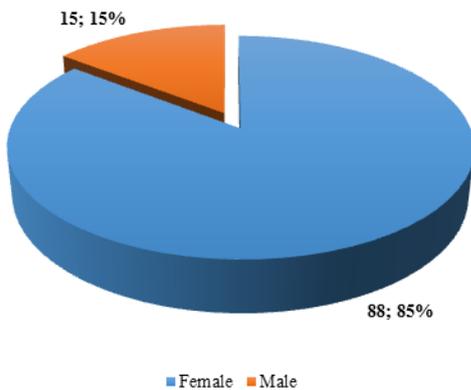


Figure 3. Sex of pre-service teachers

It is evident in Figure 4 that the respondents are distributed among the program offerings of the College of Teacher Education which are Bachelor of Elementary Education (General Elementary and Pre-elementary) and Bachelor of Secondary Education (with specialization in Biological Science, English, Filipino, Mathematics, Music, Arts, Physical Education and Health, Social Science, and Technology and Livelihood Education). General elementary pre-service teachers outnumbered the respondents by 11%. In the BSEd programs, there are almost equal distribution among Math and Science courses, Languages, and Social Sciences. The full-implementation of K-12 program tempted pre-service teachers to pursue

skill-based programs such as MAPEH and TLE, hence occupied the highest share of 28%.

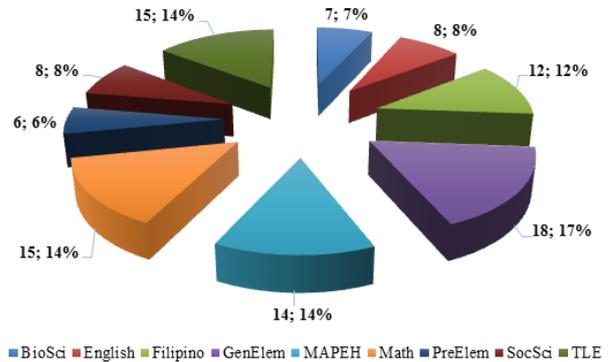


Figure 4. Specialization of pre-service teachers

Table 1. Mean and standard deviation of pre-service teacher's responses on control

Indicative Statement	Mean	Std. Dev.	Descriptive Interpretation
How much control do you perceive you have if:			
You suffer a major financial constraint.	3.32	0.78	Moderately
People respond unfavorably to your latest ideas.	3.26	0.85	Moderately
Your personal and work obligations are out of balance.	3.06	1.01	Moderately
Your computer crashed for the third time this week.	3.40	1.16	Moderately

Legend: 4.50 – 5.00 – Completely; 3.50 – 4.49 – Almost Completely; 2.50 – 3.49 – Moderately; 1.50 – 2.49 – Quite; 1.00 – 1.49 – Not at All

The pre-service teachers perceived that they have a moderate control if they encountered adversities in academic and personal life. With a mean score of 3.06 – 3.40 (SD = 0.78 – 1.16), they find some facet of the situation they can influence. Further, they have moderate perceived ability of not giving up in times of difficulties.

Table 2. Mean and standard deviation of pre-service teacher's responses on ownership

Indicative Statement	Mean	Std. Dev.	Descriptive Interpretation
To what extent do you feel responsible for improving if:			
You are overlooked for a good grade.	3.97	0.79	Almost Completely
Someone you respect ignores your attempt to discuss an important issue.	3.69	0.91	Almost Completely
Your group mate/s is/are not cooperating in your school project/activity	3.61	1.17	Almost Completely
The activity you are in is a total waste of time.	3.19	1.07	Moderately

Legend: 4.50 – 5.00 – Completely; 3.50 – 4.49 – Almost Completely; 2.50 – 3.49 – Moderately; 1.50 – 2.49 – Quite; 1.00 – 1.49 – Not at All

When asked about what extent they feel responsible for improving certain situation, pre-service teachers generally reported “almost completely.” A mean score of 3.19 – 3.97 (SD = 0.79 – 1.17) implies that they have higher ownership or sense of responsibility in dealing with hardships.

**Table 3.** Mean and standard deviation of pre-service teacher’s responses on reach

Indicative Statement	Mean	Std. Dev.	Descriptive Interpretation
How far does the outcome reach into other areas of your study or life if:			
You are criticized for a school project that you just completed.	3.23	0.82	Moderately
The high-priority school project you are working on gets cancelled.	3.27	0.79	Moderately
You are almost late to your first class period.	3.39	1.10	Moderately
You miss an important class discussion.	3.03	1.07	Moderately

Legend: 4.50 – 5.00 – Completely; 3.50 – 4.49 – Almost Completely; 2.50 – 3.49 – Moderately; 1.50 – 2.49 – Quite; 1.00 – 1.49 – Not at All

Pre-service teachers admitted that adversities

moderately affect their study or life in general. With a mean score of 3.03 – 3.29 (SD = 0.79 – 1.07), it suggests that they are affected if things go wrong along their academic and personal journey.

**Table 4.** Mean and standard deviation of pre-service teacher’s responses on endurance

Indicative Statement	Mean	Std. Dev.	Descriptive Interpretation
How long will the adversity endure if:			
You accidentally delete an important file in your PC/laptop.	3.21	1.08	Moderately
You are unable to take a much-needed vacation.	3.45	0.87	Moderately
After extensive searching, you cannot find a very important document.	3.15	0.84	Moderately
You lost something that is very important.	2.78	1.09	Moderately

Legend: 4.50 – 5.00 – Completely; 3.50 – 4.49 – Almost Completely; 2.50 – 3.49 – Moderately; 1.50 – 2.49 – Quite; 1.00 – 1.49 – Not at All

Generally, pre-service teachers reported that adversity will moderately endure in certain point of time. With a mean score ranging from 2.78 – 3.45 (SD = 0.84 – 1.09), they are less resilient in handling hardships.

**Table 5.** Level of adversity quotient among pre-service teachers

Level	Control	Ownership	Reach	Endurance	CORE (Adversity Quotient)
High	45 (43.7)	76 (73.8)	42 (40.8)	35 (34.0)	46 (44.7)
Average	58 (56.3)	27 (26.2)	61 (59.2)	66 (64.1)	57 (55.3)
Low	-	-	-	2 (1.9)	-

It can be noted from Table 5 that majority of pre-service teachers have average to high level of control, ownership, reach, endurance, and adversity quotient in general. They have a good control and better ownership of adversity but less reach and endurance of such. It signifies that pre-service teachers perceived varying degree of response in academic and personal adversities.

**Table 6.** Level of Mathematics and English language proficiency among pre-service teachers

Level	Mathematics Proficiency	English Language Proficiency
High	5 (4.9)	1 (1.0)
Average	23 (22.3)	47 (45.6)
Low	75 (72.8)	55 (53.4)

When tested for the level of Mathematics and English language proficiency, almost 73% of pre-service teachers performed poorly in Mathematics and almost 54% obtained low scores in English language proficiency test. It clearly indicates that majority of pre-service teachers lack mastery of the basic Mathematics and English language competencies.

**Table 7.** Significant relationship between pre-service teacher's adversity quotient and level of Mathematics proficiency

Variables	r-value	p-value
Control and Mathematics Proficiency	-.113	.257
Ownership and Mathematics Proficiency	.083	.403
Reach and Mathematics Proficiency	.005	.961
Endurance and Mathematics Proficiency	-.134	.178

It is shown in Table 7 that none among the constructs of adversity quotient significantly correlate with the level of mathematics proficiency among pre-service teachers. Although it is statistically insignificant, there are inverse relations between control and mathematics proficiency and endurance and mathematics proficiency. It means that even they have a higher control in adversity or lesser endurance of the adverse effect of difficulties, they do not guarantee better mathematics performance.

**Table 8.** Significant relationship between pre-service teacher's adversity quotient and level of English Language proficiency

Variables	r-value	p-value
Control and English Language Proficiency	.116	.242
Ownership and English Language Proficiency	.200*	.043
Reach and English Language Proficiency	-.052	.602
Endurance and English Language Proficiency	-.022	.829

\* significant at  $p < .05$

As presented in Table 8, there exist a positive and significant correlation between ownership and English Language proficiency. At 5% level of significance, a direct correlation between these variables is evident. It clearly indicates that as the pre-service teacher demonstrates sense

of responsibility or accountability to improve the adverse situation, the more proficient they are in the English language. Moreover, since pre-service teachers in the College of Teacher Education have Intensive English Language Proficiency (IELP) program, it may further their acquisition of English language competencies which is contributory to their confidence in owning a difficult situation they are in.

## 6. Discussion and Conclusions

Since majority of the respondents performed poorly in Mathematics, an intervention program may be crafted and proposed in the College of Teacher Education. The existing Intensive English Language Proficiency program may be strengthened since it decreases the number of pre-service teachers who are low competent in this subject area.

Adversity quotient may be included in the Student-Development Program of the Office of Student Affairs since they are beneficial in the holistic development of students. Each College may consider the results of this study as a basis of enhancing their curricula.

Based on the findings of the study, the hypothesis stating that there is no significant relationship between pre-service teacher's adversity quotient and mathematics proficiency is not rejected. It is concluded that none among the dimensions of adversity quotient revealed a statistically significant correlation with pre-service teacher's mathematics achievement.

Further, the null hypothesis stating that there is no significant relationship between pre-service teacher's adversity quotient and English language proficiency is partly upheld. It is concluded that among the dimensions of adversity quotient, ownership revealed a statistically significant relationship with pre-service teacher's English language proficiency.

## 7. Suggestion for Further Studies

Future educators and researchers may continuously venture on research topics anchored on adversity quotient, mathematics proficiency, and English language proficiency highlighting other variables not covered by the study.

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