



# Can “Adversity Quotient” Be Taught to Drive Student Achievement?

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## Abstract

The paper aims to identify the concept of the adversity quotient, where it originated, and what it means. This paper also addresses its importance in education and key critiques, examines the use of Adversity Quotient (AQ) in education, and reviews the evidence for AQ’s influence on educational outcomes, including academic and employability outcomes. Furthermore, the article examines how AQ can be taught, reviewing the evidence on different teaching practices and techniques. The conclusion section summarizes the findings and provides a final conclusion regarding the use of AQ to drive student achievement and how it can be taught. It concludes that even though there are some valid theoretical critiques, there are teaching techniques that can increase students’ AQ, and that furthermore this can drive student achievement, increasing both subject matter knowledge and employability.

**Keywords:** Adversity quotient, Student achievement, Employability, Learning techniques

## Introduction

The Adversity Quotient (AQ) is based on the observation that some people are more able to adapt and respond to unexpected difficulties than others and may even seem to thrive on such challenges; conversely, other people struggle to deal with unexpected difficulties and may give up in response to such challenges. Stoltz (1997) defined the AQ as a measure that “tells you how well you withstand adversity and your ability to surmount it... predicts who will overcome adversity and who will be crushed... predicts who will exceed expectations of their performance and potential and who will fall short... predicts who gives up and who prevails.” The original definition also argued that AQ predicted a variety of different outcomes, including performance, motivation, creativity, learning, persistence, resilience, and several others. Thus, the AQ was positioned by Stoltz (1997) as a broad measure that reflected the individual’s willingness to keep going in the face of difficulty, which contributed to a variety of different positive outcomes. The AQ can be viewed, along with intelligence quotient (IQ) and emotional intelligence quotient (EQ), as a form of intelligence that influences student outcomes (Astuti, Widiatami et al., 2023).



The three central aspects of the AQ theory as proposed included the CORE dimensions, the LEAD framework, and the ARP measure. The CORE dimensions of control, origin and ownership, reach, and endurance are predictors of how the individual responds to adversity. Control refers to the individual's assumption that they can control events and outcomes; origin and ownership relate to who is accountable for the difficulty; reach refers to the individual's reaction capability; and endurance refers to how long the individual is willing to keep trying. These characteristics are measured in the Adversity Response Profile (ARP), which Stoltz (1997) originally defined and tested as an instrument for self-evaluation and reflection. The final core theoretical aspect of AQ is the LEAD framework, which is an action sequence intended to allow individuals to approach challenges in a productive way. The steps of the LEAD framework begin with listening to one's own emotional and cognitive response, then continue to explore that reaction and reflect on how the individual responded, analyse evidence for how the problem was addressed, and finally doing something to improve outcomes, either this time or next time. These three components formed the basis of the AQ theory as originally proposed. However, as will be discussed, there have been some changes in how it is used.

One of the key changes made in the AQ framework is the clear separation of the elements of Origin and Ownership, which clarifies that individuals can have separate understandings of where a problem originated and their own responsibility and ownership over its resolution (Chadha, 2021). Another significant change in the framework is an association with several other psychological theories, such as positive psychology, self-efficacy, locus of control, resilience (or hardiness) and personality traits and types. These associations with other elements of individual psychology clarify how the AQ can be viewed in cognitive terms. A further evolution of AQ theory is the development of personality types, including climbers (who persist and rise in the face of challenges and even seek them out), campers (people who avoid risks but are willing to deal with problems), and quitters (who give up in the face of challenges) (Juwita et al., 2020). A fourth way in which the theory of AQ has been developed is in its measurement. Although Stoltz (1997) provided the original ARP framework for assessing AQ, a wide variety of other instruments have been developed. However, these instruments have tended to be relatively weak. Yang (2021) conducted a comprehensive review of alternative AQ measures, finding six studies that met quality criteria. The assessment showed that none of the proposed instruments met all criteria; however, the ARP, and further evolutions ARP2 and ARP3, did have the strongest evidence. Thus, even though there have been a few changes made to the overall theory, the measures and core definition have remained the same since the AQ was developed.

While the theory of AQ had been relatively overlooked in the broader field of psychology, one area where it has been adopted is in education. Juwita et al. (2020), who conducted a review of studies on the adoption of AQ in the academic literature, argued that much of the research on AQ has been in the field of education, particularly in university-level learning outcomes. While the authors did note that many of the studies they reviewed were



descriptive in nature, they also noted that these studies provided some significant insight into learning experiences and achievement over time (Juwita et al., 2020). Thus, AQ as a theory of learning and resilience is particularly important for the field of education.

There are some critiques that have been made of the theory of AQ, which are important to acknowledge. One of the most important critiques is that the theory is inadequately differentiated from others (e.g., resilience and self-efficacy), and as a result instruments tend to be of relatively poor quality (Yang, 2021). This critique is supported by strong connections between AQ and constructs like self-efficacy (Astuti, Kardiyyem, et al., 2023). This critique is important, particularly if using the theory in the classroom, and is an aspect of AQ theory that should be developed. However, it is also important to note that this does not mean it is not useful, as AQ is very easy to understand and to explain to others (Hung et al., 2023). Therefore, it remains useful in the classroom regardless. A second critique is that the AQ theory needs to be investigated more in research, with most studies being relatively of small-scale and limited application in the classroom (Juwita et al., 2020). Therefore, there are opportunities for more research using AQ in the classroom, although as discussed next, research has already supported the role of AQ in student achievement.

## Adversity Quotient and Student Achievement

The first question of this paper was, how does the AQ drive student achievement? There have been a variety of studies that were conducted the connection between AQ and student achievement. These studies are summarized in Table 1. Studies can be divided into three groups, which include: direct effects on student achievement outcomes, effects on student traits and learning capabilities, and studies that did not find a significant effect.

One group of studies has associated AQ with content learning achievement in different fields. According to one study of university students in Vietnam, high AQ was positively correlated with English performance (Hung et al., 2023). The authors did note that this correlation was relatively weak, but it suggests that there could be an effect on learning outcomes. Another study investigated the effect of AQ and experiential learning on problem-solving skills (Hulaikah et al., 2020). The authors assigned students experiential learning activity and observed the effects of AQ and the experiential learning process on problem-solving capabilities. They found that high-AQ students were more likely to try problem-solving techniques they had not been directly taught, while low-AQ students only used the techniques they had been taught. Furthermore, high-AQ students engaged in experiential learning showed higher levels of problem-solving skills. The third study investigated the role of AQ in student performance during COVID-19 among senior high school students in Indonesia (Safi'i et al., 2021). The authors found that AQ had a positive, though relatively weak, effect on student performance. Such effects can take place



at a very young age, according to a study in Thailand which examined the handwriting practice outcomes of first grade students (Prasittisrisakul et al., 2017). These authors showed that AQ was positively associated with handwriting practice outcomes, and that interventions for AQ also improved handwriting practice outcomes. Overall, these studies show that AQ may be one of the factors that directly influence student performance.

Another group of studies has associated AQ with student capabilities and traits, which may affect learning outcomes even though they do not directly translate into achievement. For example, one study conducted among Indonesian junior high school students, found that AQ was positively associated with student online learning tendencies (Kifta et al., 2021). While online learning tendencies do not directly reflect student achievement, they were still critical during the COVID-19 pandemic for learning outcomes. Another study investigated resilience among nursing majors in Thailand (Noppasod et al., 2018). The authors found that AQ was one of the characteristics that most strongly correlated to resilience, second only to perceived self-efficacy. Another interesting study, which was also conducted in Thailand, investigated how AQ, along with emotional quotient (EQ) and moral quotient (MQ) were associated with citizenship behaviour (Siphai, 2015). The author found that both AQ and MQ were positive predictors of citizenship behaviour, with AQ having both a strong direct effect and an indirect effect through MQ. In contrast, EQ had a negative effect on citizenship behaviour. Safi'i et al. (2021), who investigated senior high school student performance during COVID-19, also found that AQ had a positive effect on student achievement, motivation and learning autonomy. Therefore, they concluded that AQ was a factor, if a minor one, in student learning outcomes during COVID-19. These studies show that AQ is a significant factor in different student traits and capabilities that affect learning outcomes, as well as having a weak effect on the learning outcomes.

However, not all studies have shown a significant effect of AQ on student learning outcomes. One study, which was conducted in a sample of Chemistry Education majors, found that there was a low and insignificant correlation between AQ and critical thinking skills (Khusna et al., 2023). Another study, conducted among Malaysian polytechnic students, found that AQ explained less than one percent variance in student achievement (Matore et al., 2015). These studies indicate that AQ may not be significant in all learning outcomes, but it must be noted that these studies used different measurement instruments, which as Yang (2021) noted may not be reliable.

In summary, the evidence suggests that there are many ways that AQ could influence student achievement and outcomes. These include both academic achievements and other skills which are related to learning outcomes and employability. Furthermore, studies were identified that found positive effects on learning both in Thailand and in other neighbouring countries. While not all studies found a significant link, enough did so that AQ must be



seriously considered as a factor in student achievement. This raises the question of how AQ could be increased in order to positively influence student achievement.

**Table 1** Studies on AQ and student achievement

| Authors                        | Country   | Population                            | Findings  |
|--------------------------------|-----------|---------------------------------------|---|
| Hulaikah et al. (2019)         | Indonesia | Vocational Accounting students        | High-AQ and low-AQ students used different problem-solving techniques in an experiential learning project. An interaction effect was found between AQ and experiential learning on problem-solving. |
| Hung et al. (2023)             | Vietnam   | University students (mixed majors)    | A low positive correlation was found between AQ and English performance.  |
| Khusna et al. (2023)           | Indonesia | University Chemistry Education majors | AQ was not significantly correlated with critical thinking skills.  |
| Kifta et al. (2021)            | Indonesia | Junior high students                  | AQ and self-efficacy were correlated with student online learning tendencies.   |
| Matore et al. (2015)           | Malaysia  | Polytechnic students                  | AQ was not strongly associated with academic achievement scores.  |
| Noppasod et al. (2018)         | Thailand  | University Nursing majors             | AQ was strongly correlated with resilience.   |
| Prasittisrisakul et al. (2017) | Thailand  | First grade students                  | AQ was positively associated with handwriting practice outcomes. An AQ practice increased handwriting practice outcomes as well.  |
| Safi'i et al. (2021)           | Indonesia | Senior high school students           | AQ was a weak predictor of student motivation, learning autonomy, and performance.  |
| Siphai (2015)                  | Thailand  | Rajabhat University students          | AQ was a positive predictor of good citizenship behavior.   |



## Learning Techniques to Increase Adversity Quotient

The second question of this paper was, *how can the AQ be taught?* While the principle of Stoltz's (1997) definition of AQ was that it was something that could be learned. Since then, research has expanded into how student AQ can be influenced by teaching practices. Studies on this area are summarized in Table 2. As will be discussed below, these studies typically are aimed directly at students, either inside or outside the classroom, but can also address teaching practices through interventions aimed at teachers.

Some interventions aimed at increasing AQ were directed towards students, introducing new learning and teaching practices into the classroom. One of these interventions, which took place among Indian secondary students, consisted of a series of 15-40-minute sessions, during which students completed 16 activities (G & Gupta, 2019). These activities were designed to introduce the CORE and LEAD frameworks and teach problem-solving techniques to help students overcome adversity. The results have shown that the experimental group had significantly higher AQ following the intervention, and this effect was also found in a replication study. Another study focused on the teaching of metacognitive skills to mathematics students to increase AQ (Amir et al., 2021). The authors compared groups of boarding students and non-boarding students. They devoted classroom time to teaching metacognitive learning strategies like think-pair-share, think-pair-square, and conventional class. They found that teaching these learning strategies also resulted in an increase in AQ, although the effects were higher among non-boarding students than among boarding students. Yet another classroom-based approach was service learning, which was investigated in a study among Chinese students. Service learning is associated with both student achievement objectives and student resilience and personal growth objectives, such as by assigning students to work in community settings. Pong and Lam (2023) investigated the effect of service learning initiative. They found that while AR was similar between control and intervention groups at the start, after the service learning experience the group that had taken part had a significantly higher AQ scores than those who did not take part. These studies illustrate that classroom-based teaching can be used in different ways to increase AQ, such as by directly teaching the CORE and LEAD frameworks for addressing problems, introducing metacognitive learning strategies designed to assist in problem-solving, or through service learning, in which participants encounter and overcome adversity.

Many of the interventions that have been identified took place outside the classroom, in contexts like counseling, guidance and recreation. An example of such an intervention as the development of a group guidance and counselling program, aimed at lower secondary students in Thailand (Samart et al., 2017). The integrated group counseling program was used as an intervention, in which students were taught the CORE and LEAD frameworks for addressing adversity. Then results were compared against a control group. The authors found that the students who took place in the integrated counseling and guidance program showed a significant increase in their AQ levels after the intervention. A similar program was implemented for secondary students, in which the students were divided into two groups, and one group was taught the LEAD framework for addressing adversity (Prakaew & Leesattrupai, 2017). Assessment of AQ and stress levels before and after the intervention showed that while these levels were similar in the control and intervention groups prior to the intervention, AQ was higher and



stress levels were lower afterward for students in the intervention group. A completely different approach was taken in a study of deaf students. This study introduced various recreation activities in order to increase AQ among students. The programs were eight-week programs in which students were taught new and challenging activities. The authors found that activities including technology skills, music and singing, music appreciation, painting, field trips, and arts and crafts led to a significant increase in AQ among students who enrolled (Polsorn, 2018). These studies show a diversity of approaches that can be used outside the classroom to promote AQ development among students, such as participating in counseling and guidance programs or engaging in recreational activities, which offer students the opportunity to solve problems and overcome adversity in a low-stakes environment.

Finally, there were some interventions that were aimed at teachers, rather than students directly. One of these interventions, conducted in Thailand, developed and trained teachers in a five-stage guidance model, which they could then use in their classroom and guidance practice to increase AQ among their primary pupils (Kestsanoi & Vanaporn, 2022). The authors' pre-test and post-test strategy showed that the implementation of the guidance model for teachers effectively increased AQ in the classroom. This area of the research is not as developed as the classroom interventions, leaving many questions unanswered about how teachers could be better prepared to increase AQ. However, this study on its own illustrates that teaching practices are critical for developing AQ.

In summary, there are many different interventions that have proved to be successful at increasing AQ. These have ranged from classroom interventions to interventions outside the classroom to teacher training programs, which have indirect effects. In the final section, the implication of these findings is considered.

**Table 2** Studies on increasing AQ in the classroom

| Authors                       | Country   | Population             | Findings   |
|-------------------------------|-----------|------------------------|--|
| Amir et al. (2021)            | Indonesia | Secondary students     | Students were taught multiple metacognitive strategies, which resulted in an increase in AQ for some students. |
| G and Gupta (2019)            | India     | Secondary students     | A classroom program led to the increase in AQ.   |
| Kestsanoi and Vanaporn (2022) | Thailand  | Primary students       | Training teachers in a guidance activity model was able to increase AQ in students.                            |
| Polsorn (2018)                | Thailand  | Deaf students          | Recreation activities were able to increase AQ in students.  |
| Pong and Lam (2023)           | Hong Kong | Undergraduate students | Participation in service learning increased AQ.  |

**Table 2 (continue)**

| Authors                         | Country  | Population         | Findings  |
|---------------------------------|----------|--------------------|---|
| Prakaew and Leesattrupai (2017) | Thailand | Secondary students | An AQ development program was developed for secondary students, which was shown to reduce stress. |
| Samart et al. (2017)            | Thailand | Secondary students | A group counseling intervention effectively increased the AQ of enrolled students.                |

## Conclusion

This paper has reviewed the literature on the adversity quotient (AQ) and how it can drive student achievement. The AQ framework, which was developed by Stoltz (1997), has been adopted widely in the education literature. There are some theoretical issues and critiques that are valid and should be considered. However, the empirical research shows an answer to the paper's central question. Several studies have revealed that AQ has a direct effect on student outcomes, including their achievement and personal traits and competencies that affect performance, like resilience and online learning tendencies among others. Therefore, it can be concluded that AQ is a factor – though not the only factor – in student achievement, including both academic performance and building the competencies and traits that support performance, now and in the future. Furthermore, the empirical evidence also showed that AQ can be influenced in a variety of ways. Effective interventions ranged from direct teaching of the AQ framework and metacognitive learning strategies in the classroom, to external activities like guidance and counseling and recreational activities, to training teachers to promote AQ. From these studies, it can be concluded that AQ is something that can be taught in the classroom, and that furthermore there are several known ways that this could be done. As a final conclusion, it can be said that AQ is not an inherent trait that students do or don't have – it is something that can be nourished and developed in the classroom, leading to better learning outcomes. Therefore, finding ways to promote AQ should be a priority for teachers and researchers.

Based on the findings and conclusions of this study, accordingly, recommendations are suggested to concerned stakeholders:

For educators, it is important that AQ-enhancing strategies should form part of the curriculum in order to help students build resilience and adaptability. The emphasis should be placed on specific practices such as problem-based learning, reflective activities, and scenario-based training. Both make him culture the ability to cope and overcome difficulties, which together cultivate critical thinking and emotional intelligence, crucial for academic outcomes and employability. Therefore, school districts should provide professional development



experiences for teachers that focus both on AQ frameworks and corresponding pedagogical techniques to better use them.

Policymakers should realize that AQ is an essential part of holistic education, and, therefore, include it within the educational curricula and assessments. This means national education strategies should propagate resilience-building programs, whereby AQ development becomes systematically embedded into formal systems of education. Furthermore, it involves the use of resources to support AQ-focused interventions in designing and delivering them, especially in resource-poor or high-stress learning environments where such students are usually at an increased disadvantage.

It would therefore be important for further research, particularly into the theoretical critiques of AQ, and to provide evidence that AQ has long-lasting impacts on student achievement. Other promising directions for research involve looking into the intersection of AQ with other psychological constructs, including growth mindset and emotional regulation. Such research could uncover interactions between dimensions that influence educational outcomes. Interdisciplinary research will further help in developing more effective teaching techniques and tools toward the enhancement of AQ.

Finally, the harnessing and dissemination of AQ in education would have to be achieved collaboratively across different sectors. AQ is able to be a transformative agent in changing the achievement trajectory of students and preparing them for life in dynamic times.

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