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Measuring Millennials’ Adversity Quotient® and Its Correlation with Individual Performance in Project Teams

By

Lloyd Harriman

Dissertation submitted in partial fulfilment for the Degree of Master of Science in Programme and Project Management

WMG
THE UNIVERSITY OF WARWICK

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Submitted August, 2016
Abstract

The youngest generation to enter the project management environment are millennials. Millennials are individuals born between 1980-2000. As a generation, they have been subject to widespread attention due to the recognition that they will dominate a vast majority of the workplace in the near future. Acknowledgement of millennials’ unorthodox upbringing in comparison to previous generations has caused major concerns amongst professionals. At the forefront of these concerns is whether millennials are capable of overcoming adversity. This research paper seeks to examine millennials’ responses to adversity. In order to do so, Stoltz’s (1997) Adversity Quotient Profile® (AQP®) was used. Fundamental to the AQP® are the dimensions of CORE: Control, Origin and Ownership, Reach and Endurance. In total 100 (50 male; 50 female) responses from British millennials were collected. Results from the AQP® showed that millennials possess a moderate AQ®. In addition, no significant differences were found between male and female AQ® scores. This was the same for age with no significant differences being found on the dimensions of CORE and AQ®. However, significant correlations were found between the dimensions of Control and Origin and Ownership as well as Reach and Endurance. The implications of these results are then discussed; providing a fresh insight into how millennials may perform in project teams. With no significant differences being found between AQ® scores and age respectively, it was concluded that a bigger sample size was needed. With regard to their moderate AQ® scores, millennials were found to already possess the necessary resilience to be successful in project management. Finally, correlations that were found supported Stoltz’s (1997) definitions of the dimensions of CORE and provided a number of implications concerning millennials’ working performance.
Acknowledgements

I would like to thank my supervisor Dee Nicholls for her constant support and encouragement throughout my project. Not only has she gone above and beyond what is expected, she has also helped me develop as a person throughout my time as part of WMG. A further acknowledgement goes to Peak Learning, who despite the time difference, have always provided support when needed. Moreover, their consent for me to use their renowned Adversity Quotient® measure made this research project possible. A final and highly personal dedication goes to my late grandfather Malcolm Roy Harriman, who despite not being alive anymore, continues to inspire me to succeed.
Declaration

I have read and understood the rules on cheating, plagiarism and appropriate referencing as outlined in my handbook and I declare that the work contained in this assignment is my own, unless otherwise acknowledged.

No substantial part of the work submitted here has also been submitted by me in other assessments for this or previous degree courses, and I acknowledge that if this has been done an appropriate reduction in the mark I might otherwise have received will be made.

Signed candidate_____________L.Harriman__________________________________________

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<td>A suitable project should clearly and substantially relate to, or be applicable to, the management of projects or programmes. Topics can include project or programme methods, methodologies, tools, processes, human factors, multi-project scenarios, collaborative projects, in-company applications, or new product or service introduction. The application or research can be in any industry, including but not restricted to, engineering, service industry or IT</td>
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<td>My project relates to this definition in the following way:</td>
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<td>The project satisfies the outlined criteria by examining the human factors related to programme and project management. It focuses primarily on the youngest generation within project teams: millennials. This project has given the author the appropriate knowledge to succeed within the project management environment by helping them understand how to improve their responses towards adversity over time. Additionally, it has given them a greater insight into what to expect from the project management environment.</td>
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<td>The outcomes of the author’s work may be particularly useful to senior project professionals who are looking to gain a deeper understanding of the youngest generation within the working environment. By exploring millennials characteristics and how they might contribute towards project teams, industry professionals may be able to develop further ways in which they can recruit and develop their workforce.</td>
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Harriman Lloyd [1566804]
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List of Abbreviations

AQ® – Adversity Quotient®

AQP® – Adversity Quotient Profile®

PMI – Project Management Institute
Introduction

Chapter 1 Introduction

1.1 The Millennial Generation

The youngest generation in project teams today are millennials. The birth range that defines millennials varies in literature, however it is commonly thought to be between 1980-2000 (Rainer and Rainer, 2013). As a generation, they have received widespread attention due to their importance in maintaining future economic and competitive success. Reinforcing this, Davis (2013) forecasts that by 2025 millennials will constitute 75% of the global workforce. Millennials’ career aspirations, attitudes about work, and knowledge of technologies are already beginning to shape the culture of the twenty-first century workplace.

Millennials are subject to a growing number of unfavourable stereotypes, which are causing them to become somewhat unpopular among senior managers. They have been described in literature and press as the “Look at Me” generation, which refers to their overconfidence and narcissism (Pew Research Centre, 2007). Jenkins (2008) believes these traits have developed as a result of their upbringing, with their parents having far more involvement in their children’s experiences and education compared to past generations. Consequently, the terms ‘helicopter parents’ and ‘trophy kids’ have emerged to signify the extent to which parents belonging to the ‘Baby Boomer’ and ‘Generation X’ cohorts have spoiled their children (Alsop, 2008). It is believed that their parenting style has caused millennials to become accustomed to receiving constant feedback and praise, which in turn has led them to develop high self-esteem (Alsop, 2008). This has made some senior managers in industry believe that millennials require continual positive reinforcement in the working environment.

It is argued that parental involvement and empowerment has led to many millennials’ believing that they will be financially successful in the future (Mui, 2001). The close relationships millennials have forged with their parents are extending into later life, which directly opposes patterns set by past generations (Jayson, 2006). As a consequence, millennials are perceived to be inhibiting their independence and influence they have over their own lives which leads to them avoiding adversity.
Potentially, this enhances their narcissistic nature by making them believe that they ‘can do anything’ due to their upbringing in a world of opportunities. Rysiew et al. (1999) confirm this by outlining that millennials interests have greater breadth in comparison to previous generations, which is causing them to possess an insufficient depth of knowledge to commit to a specific career. With narcissism increasing rapidly, millennials may perceive themselves to have more talent than they actually possess. Moreover, millennials regularly see themselves as superior to other people, judging their own performance more favourably (Judge et al. 2006). Judge et al. (2006) found that narcissism causes cognitive bias regarding workplace factors, such as leadership, task performance, and contextual performance. Interestingly, narcissists are thought to report themselves to be better as a result of honest belief as opposed to defensive behaviour (Judge et al. 2006). This may be detrimental to organisations, with particular effect on jobs requiring realistic self-assessment (Judge et al. 2006).

The population of millennials working on projects is increasing, with clear intentions to lead. A worldwide study conducted by the Harvard Business Review (2015) found that the most common motivation which is driving millennials to become leaders is the prospect of higher monetary reward. Alternative motivations that were found differ between regions and include wanting to lead so that they can coach and mentor others, as well as the opportunity to influence an organisation (Harvard Business Review, 2015).

Millennials possess an affinity for technology, due to its availability throughout their lives. Employers have praised millennials for their technological capability. This is thought to have increased their multitasking and team working abilities (Trunk, 2007). However, concern has also emerged and frustration is growing regarding their constant reliance on technology within their daily lives, in particular their excessive use of social media.

The millennial generation are not only the most educated generation in history, they are also the most diverse demographically, with one third belonging to a minority (Trunk, 2007). This has contributed towards a more tolerant atmosphere in today’s society (Delcampo et al. 2011). The seismic shift from people gaining positions based on raw talent, to millennials being driven to complete endless qualifications to meet
and exceed the entry criteria imposed in today’s working world has become increasingly evident.

With time in education increasing and less exposure to organisational challenges, the working environment presents questions about how well equipped millennials are for coping with adversity. For instance, with their over-sheltered upbringing, millennials are perceived to have a low tolerance for prolonged exposure to adversity. Additionally, most of the learning situations they have been placed in during their education do not contain failure as a real option, with widespread claims that today’s education is less challenging when compared to past generations’ experiences. This is reinforced by the large number of millennials who have obtained undergraduate degrees.

The question that has arisen is whether millennials can handle the challenges that project management will inevitably present.

1.2 The Demands of the Project Environment

The literature has produced various definitions of adversity. A broad definition of adversity proposed by Jackson et al. (2007) defines adversity as any hardship and suffering related to difficulty, misfortune, or trauma. Luthar and Cicchetti (2000) produced a threshold dependent view of adversity in their statement that adversity “typically encompasses negative life circumstances that are known to be statistically associated with adjustment difficulties”. This definition highlights their perception of adversity being strongly related to the notion of risk.

The inevitability of adversity is illustrated by Bonanno and Mancini (2008) who state that the majority of humans will face at least one potentially traumatic event in their lives. The reason for the word ‘potentially’ is used to signify the clear differences that exist between how people react to life events. For example, DeLongis et al. (1982) outlines that, for some people, the hassles of daily life are too much, whereas for others the most challenging of circumstances provide an opportunity for them to thrive (Bonanno, 2004).
The Project Management Institute (PMI) (2000) defines a project as “a temporary endeavour undertaken to create a unique product, service or result”. This definition highlights the uncertain environmental context in which projects are expected to deliver results. The current project environment is ever-changing because of factors such as globalisation, fiercer competition in a larger market space and the subsequent pressure to deliver results in the shortest possible time with the least resources. This increasingly turbulent environment introduces greater elements of risk, uncertainty and complexity in today’s projects, which poses problems over whether they can be successfully delivered within the outlined constraints. For example, the initial project plan is subject to constant and sometimes unpredictable change as a project progresses through its lifecycle. This pressure to fulfil the project specification can lead to communication channels between employees and stakeholders breaking down. These have often caused confusion over the final deliverables, leading to project delays and overspends.

It is clear that much of effective project management is uncertainty management (Atkinson et al. 2006). Atkinson et al. (2006) identified three key areas of uncertainty in project management: estimation, project parties and the project life cycle. Uncertainty over estimates is an obvious but commonly reoccurring problem, of which project teams must be aware. Project sponsors have been shown to define the cost, time and quality constraints of projects unrealistically, with ambiguity over the specification and a misunderstanding of complexity in terms of influencing factors and associated interdependencies. Ignorance of a project scope can lead to significant adversity for the project team, as once agreed they will likely face significant penalties for failing to deliver within the agreed constraints.

Projects of larger scale often introduce multiple project parties. These parties create a large degree of uncertainty over the project management infrastructure with problems over adverse selection, moral hazard and risk allocation arising (Atkinson et al. 2006). When external project parties are subcontracted onto a project these problems become more substantial. For instance, for each external party involved, it is likely that they will have their own performance objectives, or separate priorities. Consequently, varying perceptions of risk associated with the outlined objectives will arise, which often causes alternative methods of managing risk to be applied. This can be
increased if parties possess different knowledge, and disagree on the level of uncertainty present.

The PMI (2000) outlines the five stages of the project lifecycle as: project conception and initiation, project definition and planning, execution, project performance and control, and project closure. A regularly observed difficulty in projects is naivety in the initial planning stages. This leads to significant problems in the execution stage over the emerging need for further design development and production planning, which has adverse effects on the performance criteria. Further uncertainties, which often lead to issues, lie in the allocation of resources and the introduction of design changes. The implementation of design changes during a project can lead to multiple direct and indirect consequences. Direct consequences include disruption of the project schedules and resources. Clients often change their mind on the final deliverable, which can lead to significant uncertainty and the entire schedule changing. Additionally, such changes may gain contractors flexibility in regard to their payments and time constraints, due to the original agreement changing.

With many organisations operating a multi-project environment, project members must deliver outputs under challenging timescales and are often required to work on multiple projects at once (Rosenau, 1988; Crawford, 1992; Geraldi, 2008). The challenge for project members working on numerous projects is the high complexity, with interdependencies between inputs and outputs and resources being shared between projects (Fricke and Shenhar, 2000; Kaulio, 2008). The disruption of one project will detrimentally affect all of the other projects. The continuous pressure project members are under means they must work long hours. This has been shown to cause project members to develop health problems due to stress, thus damaging their levels of productivity (Karasek and Theorell, 1990). The project environment, therefore, requires individuals to possess high levels of resilience due to the adversities which they will face as a consequence of continuous change.
1.3 Adversity Quotient®

In 1997, Dr Paul Stoltz introduced the Adversity Quotient® (AQ)® as a way to measure and strengthen an individual’s response to adversity. Stoltz (1997) defines the AQ®, as “the capacity of the person to deal with the adversities of life”.

Central to describing an individual’s pattern of response to adversity are the “CORE” dimensions which make up the AQ®. The four “CORE” dimensions are:

- Control
- Origin and Ownership
- Reach
- Endurance

The first dimension of Control seeks to determine an individual’s level of perceived control over an adverse event. The key to this dimension is perception, as it is almost impossible to gain an actual measure of control from an individual. Individuals who possess a high AQ® believe that they can influence the outcome of an adverse situation, whereas people with a low AQ® feel that nothing can be done to influence the outcome. Stoltz (1997) highlights this as the most crucial dimension, due to the subsequent effect it has on the other dimensions.

Origin and Ownership refer respectively to the specific cause of adversity and the extent to which an individual owns the outcome. It is important to differentiate between these two terms. Origin is linked to blame, individuals with lower AQ® scores often see themselves as the cause of adversity. Blaming encourages learning and remorse, which allows individuals to alter their behaviours and learn from past mistakes. To a certain extent blame and remorse are facilitative, however, when used frequently, the effects can become destructive and demoralising. High Origin scores signify that the individual believes external factors to be the cause of adversity. The second part of this dimension, Ownership, is primarily concerned with accountability. Individuals who are accountable, possess a higher AQ® because they have a heightened level of control and responsibility (Stoltz, 1997).
Reach indicates the extent to which an individual will allow adversity to affect other areas of their life. Lower Reach scores indicate that an individual is more likely to allow adversity to spread into other areas of their life. Conversely, when scores are high, it is thought that an individual limits the impact of adversity (Stoltz, 1997).

The final element of Endurance poses two interrelated questions regarding how long the adversity and cause of adversity will last. When scores on this scale are high, it is thought that the individual perceives adversity to be temporary (Stoltz, 1997). Whereas, when scores are low an individual is thought to perceive adversity as enduring and any positive events as temporary.

1.4 Research Question and Objectives

1.4.1 Research Question

How do millennials respond to adversity in relation to the “CORE” dimensions of Control, Origin and Ownership, Reach and Endurance, and how does this correlate with their performance in project teams?

1.4.2 Objectives

1. To explore Stoltz’s AQ® theory and its correlates.
2. To explore the relationship between the CORE of AQ® and work performance.
3. To discuss the demands that the project environment makes on the individual.
4. To assess how millennials measure up on the AQ® profile.
5. To propose methods to continuously develop CORE in millennials so they contribute optimally to project teams.

To assess millennials' tolerance for and response to adversity, this research paper will use Stoltz’s (1997) benchmark concept known as the AQ®. It is therefore vital to have an in-depth understanding of the theory and its correlates. This will ensure that individual responses across the dimensions of CORE are fully understood, in terms of what their response means, and why they respond in such a way. Furthermore, it is
impossible to consider whether millennials will be able to cope as members of project teams without a thorough understanding of the project environment. From using the AQ® on the millennial generation, a conceptual understanding of how they respond to adversity can be derived. This will allow the author to outline ways in which millennials can further strengthen their CORE, thus enabling them to improve their performance in project teams.

1.5 Contribution

The research paper will contribute to the existing body of knowledge in project management by examining whether millennials possess the required resilience to handle the inevitable adversity project management brings as a profession. This will benefit senior project managers and project recruitment specialists, providing them with a greater understanding of the millennial generation, whilst learning new ways in which they can maximise the performance of millennials in the workplace.

There is a possibility that this research paper will arrive at the conclusion that millennials are not suitably equipped to take on responsibility within projects. As a consequence, it may lead to stricter entry requirements and more rigorous training schemes to make millennials “project-ready”. Furthermore, the discoveries from this paper may enable the author to, within limits, predict the likely performance of projects that are led or populated by millennials.

1.6 Project Structure

In total, this project consists of six chapters:

Chapter one presents the research problem and provides a justification for its significance. Content includes the demands of the project environment, the millennial generation, and the AQ®.
**Chapter two** provides an in-depth overview of all relevant literature related to the AQ® and millennial generation within project management. Topics include: adversity, stress and psychological resilience.

**Chapter three** outlines the research methodology, detailing what variables will be measured and what instrument will be used. It also includes information on the sampling method employed and how the data collected will be analysed. To measure millennials AQ® an online version of the Adversity Quotient Profile® (AQP®) will be employed. Snowball sampling will be used to collect 100 British male and female participants of millennial age.

**Chapter four** presents the data collected from the AQP®. Data collected will be analysed using SPSS software.

**Chapter five** delivers a thorough explanation of the analysed results, highlighting links to previously discussed literature, as well as examining the positive or negative implications of the results obtained.

**Chapter six** concludes the study and outlines the limitations, as well as proposing recommendations for future research.
Chapter 2 Literature Review

In order for a valid conclusion to be reached, it is essential that the author reviews an extensive amount of literature related to the research question. This will ensure that the results obtained can be fully understood in the context of the application of theoretical concepts. The literature review will begin by examining the concept of adversity, followed by the stress process. It then will review psychological resilience, before finishing with a proposal for improving resilience over time. Throughout the literature review, links will be made to both the millennial generation and project management.

2.1 What is Adversity?

The term ‘adversity’ can be considered from many different perspectives. There is evidence of the term being used to describe the difficulty of universal life events, as well as the highly sensitive personal experiences of individuals. Due to the aforementioned focus of project management, the author will explore adversity through adult resilience and behaviour literature (see Table 1).

<table>
<thead>
<tr>
<th>Adversity Definition</th>
<th>Researcher(s)</th>
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<tr>
<td>Any hardship and suffering related to difficulty, misfortune, or trauma</td>
<td>Jackson et al. 2007</td>
</tr>
<tr>
<td>A negative emotional experience that requires flexible adaptation</td>
<td>Tugade and Fredrickson, 2004</td>
</tr>
<tr>
<td>The exposure to loss or potentially traumatic events</td>
<td>Bonanno, 2004</td>
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Table 1 Definitions of Adversity

By highlighting ‘any hardship and suffering’, ‘negative emotional experience’ and ‘potentially traumatic events’ the subjective nature of adversity becomes apparent. For instance, the perception of what is deemed to be a negative life event will differ from person to person. It can be thought that situations with unknown outcomes increase the severity of the adversity faced. Moreover, scholars agree that for adversity to be
Literature Review

present there must be an element of negativity surrounding a life event (Bonanno, 2004; Tugade and Fredrickson, 2004; Jackson et al. 2007). Jackson et al.’s (1999) definition of adversity concurs, outlining a number of areas in which it can arise. In terms of the modern workplace, one can expect adversity to emerge from anywhere and can be internal factors, such as pressure from management or conflict between employees, or external, such as clients changing their minds and globalisation driving change within the external environment. Jackson et al.’s (2007) definition presents a broad view, acknowledging that everyone will experience varying degrees of difficulty, misfortune and trauma in their lives.

Tugade and Fredrickson’s (2004) definition extends the author’s understanding of adversity, by highlighting the requirement of adaptation in the face of a negative emotional experience. Adversity can therefore be seen as a consequence of an individual’s failure to adjust to changing demands, further underpinning the idea that adverse situations can be positive if an individual adapts accordingly. This relates to Stoltz’s (1997) CORE dimension of Control, where an individual who exercises a greater degree of perceived control over an adverse event is more likely to be able to adjust to given circumstances.

How an individual begins to judge an experience or stimulus to be adverse can be derived by considering the extremes of adversity. These extremes can be determined by a range of internal and external factors. A common cause of adversity from an internal perspective can be fear or self-doubt, which may decrease the likelihood of an individual overcoming adversity. Bandura (1988) provides support by recognising that individuals who doubt their ability to overcome threats suffer from greater anxiety arousal. Moreover, Bandura (1988) outlines that perceived coping inefficacy leads to higher levels of distress, autonomic arousal and catecholamine secretion. The difficulty in overcoming adversity is underlined as those that exercise control must be able to develop an effective behavioural coping efficacy as well as a level of efficacy in controlling their apprehensive cognitions (Bandura, 1988). With regard to millennials, the helicopter parenting which they have experienced may have inhibited their self-efficacy, due to their parents often acting and thinking on their behalf, thus removing the need for millennials to believe in their ability.
External factors which may impact how an individual comes to judge an experience or stimulus as adverse can be determined by the support of significant others and the situation to which it arises from. The idea that the support of significant others may change an individual’s perception of adversity is encapsulated by the stress buffering theory. The stress buffering theory forms an extension to much of the work of Lazarus (1966) and has been explored by a number of scholars including Barrera (1986), Thoits (1986) and Cohen and Willis (1985). Cohen and Willis (1985) highlight the positive impact that social support can have on an individual. First, they argue that social support may alter the experience of a stressful event by changing the way that the individual appraises it. Changes in appraisal are caused by an individual believing that the support has given them a wider range of resources. According to Barrera (1986), the effectiveness of coping is primarily determined by the relationship between perceived support and actual support. The greater these are, the more likely the individual will be able to cope. Despite the acknowledgement of social support as a buffer against stress, there is a lack of evidence to reinforce the outlined relationship between perceived support and actual support (Haber et al. 2007). Furthermore, despite the potential benefit, not all social support is likely to have a positive effect on performance, especially if it reinforces that it will be unlikely for the individual to succeed. Millennials’ use of social media as a constant update about their lives is likely to result in greater negativity occurring, due to strangers having the ability to access their social media accounts.

The second external factor considers how unfamiliar situations may impact on an individual’s perception of adversity. The idea of a comfort zone, where an individual is thought to work in an anxiety-neutral position helps to explain this (Bardwick, 1995). For example, when an unfamiliar situation arises, it is likely that an individual will have to step outside of their comfort zone. Consequently, stress and anxiety is induced, which in turn makes the individual more likely to consider a stimulus to be adverse.

Now that an understanding of how an individual gauges adversity has been found, the author can progress onto evaluating the internal and external factors that enable an individual to deal with adverse situations. Internal factors such as positivity and fear of failure may drive an individual to handle adversity. Positivity may lead to an individual persisting with adversity for a longer period of time, with higher levels of motivation to
find a solution to the threat faced. Arguably, positivity enables an individual to think more clearly, as opposed to negativity which often narrows an individual’s thought process solely on their concerns.

The idea that positivity may enable an individual to cope is supported by Taylor and Armour (1996) who found positive allusions to be associated with successful adjustment in the face of stressful events. In contrast, positivity may also inhibit an individual from dealing with adversity. For example, individuals may subconsciously realise how extensive the adversity is and, subsequently, avoidance behaviour may occur in order to stay positive. This suggests that positivity may only help an individual in the short term, whilst the adversity remains. Robins and Beer (2001) concur after finding self-enhancement to have no positive outcome on an individual’s performance within an academic context.

The fear of failure may lead to an individual putting more effort into overcoming an adverse situation or stimulus. Arguably, as the severity of adversity increases, motivation levels of an individual may increase. A number of theories support the notion that higher levels of arousal will be induced and performance may improve. Most appropriate are the drive theory (Hull, 1943) and the Yerkes-Dodson law (Yerkes and Dodson, 1908). The drive theory suggests that as arousal increases so will performance, whereas the Yerkes-Dodson law (1908) outlines that performance will increase with arousal, but only up to an optimal point of arousal, after which performance will dramatically decline. Thus, individuals who initially delay dealing with adversity, but become highly motivated to address it in one go, may become inhibited when they realise it requires a sustained effort. Closely linked to an individual’s fear of failure is the non-cognitive trait of grit. Grit represents an individual’s tenacity and willingness to do whatever it takes to succeed (Stoltz, 2015).

Adversity should not be thought of as a singular ‘absolute’ phenomenon, but rather a ‘relative’ one which occurs as a consequence of varying internal and external factors specific to an individual. Adversity is therefore multidimensional. The author has decided to define adversity as a random or expected negative event that is perceived as a threat with regard to being outside of an individual’s response capability. This
definition ensures that adversity is not seen as specific to certain areas within an individuals’ life, and further reinforces the individual basis on which it occurs.

With many millennials’ experiencing helicopter parenting, they are unlikely to have been exposed to prolonged levels of adversity that require high levels of adjustment. This may lead to them underestimating the scale of adversity faced, which in turn may lead to poor coping levels (Gross, 2015). Conversely, due to their lack of experience in handling adversity, the way in which they perceive adversity may be more positive, meaning they exercise more control over the situation. To examine which is more likely, the next section will focus on the underlying concepts that can determine an individual’s response to adversity. Seligman’s theory of learned helplessness will form the main basis of discussion.

2.2 When Does It Occur?

Learned helplessness occurs as a result of an individual experiencing repeated failure. After repeated attempts to handle a particular aversive stimulus, the belief that the actions of the individual will have no impact on the outcome emerges. Consequently, an individual begins to generalise all events, believing that they will be unsuccessful in changing the outcome.

The concept of learned helplessness itself was first proposed by Overmier and Seligman (1967) and Seligman and Maier (1967) during a number of animal based laboratory studies. Seligman’s initial study, and arguably the most well-known, was concerned with ‘classical conditioning’. The premise of the experiment was to see how a dog would make associations between a bell being rung and a simultaneous minor shock being applied. Interestingly, after a period of time, once the dog heard the bell, they would react as if a shock had been applied even when it was not.

The most surprising finding occurred when Seligman divided a shuttle box with a fence, with just one side electrified. He hypothesised that the dog would jump over the fence when a shock was applied, but he observed the dog do nothing. The existence of learned helplessness was confirmed. Scholars’ interest then progressed onto
examining whether learned helplessness could be observed in humans (Fosco and Geer, 1971; Gatchel and Proctor, 1976; Hiroto and Seligman, 1975).

The concept of learned helplessness was later revised after research began to highlight that the way in which people view negative life events could impact on the extent to which an individual feels helpless. In the original model of learned helplessness, Seligman did not account for differences between uncontrollable outcomes which are the same for everyone, and uncontrollable outcomes that only occur for certain people (Abramson et al. 1978). Furthermore, there was no explanation of the types of helplessness that exist (Abramson et al. 1978). To overcome these weaknesses, a revised version of the attribution theory was used. Before moving on to the changes the incorporation of the attribution theory made to learned helplessness, it should be understood that the attribution theory is primarily concerned with how an individual explains an event.

In order to account for different responses among individuals, Abramson et al. (1978) made the distinction between universal and personal helplessness. The difference among these lies in whether the person believes the outcome to exist within a humans’ capability (personal helplessness / internal attribution) or not (universal helplessness / external attribution). Stoltz’s (1997) CORE dimensions of Control and Reach are applicable to these definitions. For example, if an individual perceives adversity to be within their capability, they are more likely to exercise control over the situation. However, when an individual perceives it to be outside of their capability, they are likely to let it spread into all areas of their life, thus magnifying the adversity faced and leading to universal helplessness.

Internal and external attributions are explained by Rotter’s (1966) locus of control, which examines the behavioural impact of how an individual explains reward or reinforcement. Rotter (1966) differentiates between internal and external locus of control by defining external control as a consequence of environmental factors, such as the people, situation, opportunity and luck, which are outside of an individuals’ control, and internal control as where an individual considers an event to be dependent on their actions.
A further revision to the learned helplessness theory can be seen in the incorporation of the attributional dimensions of stability and generality. These help to account for situations where helplessness occurs. The “global” dimension refers to the wide range of situations and the “specific” dimension reflects the narrow range of situations. Furthermore, Abramson et al. (1978) made the distinction between the dimension “chronic,” being long lived and recurring, and “transient” as short lived and nonrecurring. When considering the impact of these changes, Abramson et al. (1978) suggested that the way a helpless individual explains the cause will determine their response, and thus the chronicity and generality of the helplessness being experienced. Weiner et al. (1971) outline the independent relationship that the internal-external dimensions have with the dimensions of stable and unstable. Stable factors are those that are long lasting and recurring, whereas unstable factors are those that are short lived and irregular. Using a combination of Heider (1958) and Weiner et al.’s (1971) work, it was recognised that success and failure could be attributed to perceived high or low levels of ability, task difficulty, effort and luck.

Individuals who blame themselves as the cause of adversity are often shown to be pessimists. Those that adopt this explanatory style increase the likelihood of the adversity being long lasting (Seligman, 2011). Whereas, individuals who attribute their failures to external conditions are more likely to be optimists. Seligman’s (2011) work on learned optimism addresses the relationship between optimism and pessimism. Learned optimism takes the opposite focus to learned helplessness, in that it is interested in determining how an individual can overcome the associated debilitative effects of adversity. Seligman (2011) outlines that it is possible for a pessimist to alter their behaviour in such ways that leads to them adopting an optimistic explanatory style. The idea that optimism can be learned reinforces that an individual’s AQ® can be improved over time. Project managers who possess a strong pessimistic mind-set will threaten the delivery of a project. This is due to the complex issues which will arise during a project’s lifecycle. If project managers are pessimistic about their chances of overcoming issues that arise, stakeholders and project members will become increasingly demotivated.

Seligman’s theory of learned helplessness provides an insight into how millennials’ exposure to ‘helicopter parenting’ does not necessarily mean that when faced with
adversity they will experience learned helplessness. For example, if millennials are accustomed to their parents continually dealing with adversity on their behalf, their failure in the face of an adverse situation is more likely to be due to a combination of low confidence and knowledge. This is ultimately because they have never attempted to repeatedly address an adverse situation after failing, thus placing them at the start of the learning process. Kolb’s (1984) experiential learning cycle (see figure 1) exemplifies the steps which must occur in order for individuals to learn.

In line with figure 1, if an individual has experienced very few adverse moments within their life, they will lack the ability to reflect on and conceptualise what they have learned, and consequently will have been inhibited from taking part in active experimentation. The psychological concept of a schema extends the importance of active experimentation. A schema is an accumulation of past experiences, which individuals can use to overcome the demands of new situations, as well as aiding in the development of further skills. If a millennial has experienced very few adverse moments, they will not have a relevant schema to help them.

A relationship between the attribution theory and the AQ® can also be derived. For instance, how an individual perceives adversity will determine the severity and

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duration of the adverse situation. Stoltz (1997) explains this through the CORE dimensions of Reach and Endurance which signifies the extent to which adversity is allowed to spread within an individual’s life, and the amount of time an individual perceives it to last.

### 2.3 Responses to Adversity

Individuals with a high AQ® perceive that they have greater control over adversity, which causes them to view it as a temporary occurrence. Moreover, their perceived control is reinforced through a high self-efficacy. With regard to Rotter’s (1966) locus of control, Stoltz (1997) highlights that those who adopt an internal locus of control, and therefore believe that they control the rewards and punishments they receive, are more likely to try and overcome negative situations that arise.

In spite of the above, individuals who possess high AQ® scores are more likely to adopt a locus of control which is between strong internal and external. For instance, there is a possibility that a strong locus of control may make an individual want to control everything. Consequently, conflict may arise in the workplace, causing disruptions to the progress of a project. At times, the use of an external locus of control during a project may be useful to ensure that the project team stays motivated. For example, a project manager may adopt an external locus of control to reinforce that the disruption to the project could not have been avoided. In general, high levels of achievement motivation are coupled with optimism. This is because an individual believes that they have the capability to overcome the adversity faced, which in turn presents an effort-reward relationship, providing an individual with high levels of motivation and empowerment (Conger and Kanungo, 1994).

Conversely, for individuals who possess a lower AQ® the cause of adversity is seen to be entirely the fault of the individual, thus adopting an internal attribution style. Moreover, they perceive adversity to be outside of their capability by adopting an external locus of control. The indicated self-blame causes an individual to perceive adversity as permanent and any positive experience as temporary. Eventually, these individuals will experience learned helplessness. The likelihood of an individual with a
low AQ® becoming overwhelmed by stress is high. For individuals with high AQ® scores, stress is likely to be seen as an inevitable occurrence which occurs in the pursuit of success. This will generally cause an individual to do whatever it takes to overcome the stress faced.

With regards to male and female responses to stress, Matud (2004) found that women suffer from greater levels of chronic stress and daily stressors when compared to men. Interestingly, the difference was not due to the occurrence of life events, rather their perception of life events was seen to be more negative and out of control. This implies that women may have lower scores on the CORE dimensions of Control, Origin and Ownership.

Physiologically, sex hormones are largely responsible for these differences. When stress is induced, internal changes take place which enable an individual to cope. Responsible for these changes are an individual’s hypothalamic-pituitary-adrenal axis (HPA) and Sympathetic Nervous System (SNS), which work together to mediate the body’s response to stress (Verma et al. 2011). Verma et al. (2011) outlined that women’s HPA and SNS are reduced as a consequence of their hormones. They outline that the reduction makes women more susceptible to stress due to disrupted cortisol feedback on the brain, combined with less or delayed control over the stress response. Men’s HPA and SNS greater responsiveness is supported by Frankenhaeuser et al. (1976) who found that during an exam men’s stress hormones were released more quickly than women’s, further suggesting that women may be more susceptible to stress due to their delayed physiological stress response.

With increased time invested in education and helicopter parenting giving their children instant access to money, many millennials have not experienced the working environment until they are older. Hence provoking further questions over how well they will respond to the demands of the project management environment. The attribution theory and learned helplessness theory provide an explanation for how millennials experiences with adversity may affect their response. The next step will be to examine the stress process in an attempt to understand exactly what stress is and how it occurs. This will help the author gain a clearer understanding of the likely physiological and psychological changes an individual is likely to experience as a result of adversity.
2.4 What Is Stress?

With research dating back to the 1800s, the concept of stress has been widely studied (Selye, 1936; Lazarus and Folkman, 1984). Of particular interest to scholars has been the underlying physiological and neurological responses that occur due to stress. Consequently, stress has been subject to various definitions being proposed in literature (see Table 2).

<table>
<thead>
<tr>
<th>Definition</th>
<th>Researcher</th>
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<tbody>
<tr>
<td>The non-specific response of the body to any demand</td>
<td>Selye, 1936</td>
</tr>
<tr>
<td>A major imbalance between the demands of an environment and the response capability of an individual</td>
<td>McGrath, 1970</td>
</tr>
<tr>
<td>A perceptual phenomenon arising from a comparison between the demand on the person and his or her ability to cope</td>
<td>Cox, 1978</td>
</tr>
<tr>
<td>Subject’s inability to forestall or diminish perception, recall, anticipation, or imagination of disvalued circumstances</td>
<td>Kaplan, 1983</td>
</tr>
<tr>
<td>A relationship between the person and the environment that is appraised as taxing or exceeding his or her resources and endangering their wellbeing</td>
<td>Lazarus and Folkman, 1984</td>
</tr>
<tr>
<td>A psychological, physiological and behavioural response by an individual when they perceive a lack of equilibrium between the demands placed upon them and their ability to meet those demands</td>
<td>Palmer, 1989</td>
</tr>
</tbody>
</table>

Table 2 Definitions of Stress

Harriman Lloyd [1566804]
Selye’s (1936) definition of stress takes a singular view of the term without consideration of the effect of the environment or the impact it has on an individual’s cognition. This is perhaps due to Selye’s roots in biology. The importance of the environment is recognised by both McGrath (1970) and Lazarus and Folkman (1984). Unlike Selye (1936), they both allude to the psychological importance in handling stress by outlining “response capability” and “appraisal.” Lazarus and Folkman’s (1984) definition highlights the subjective nature of stress by outlining the impact of an individual’s appraisal. Similar to adversity, what an individual perceives as stressful will vary depending on the person and the environment from which a situation arises. Cox (1978) highlights the importance of “coping,” which further reinforces the different ways in which people are seen to handle stress. Kaplan’s (1984) definition supports the importance of cognition, by underlining a range of perceptual processes. A number of the definitions (McGrath, 1970; Lazarus and Folkman, 1984; Palmer, 1989) all agree that the disruption to the homeostatic functioning of an individual is the primary onset of stress. A further agreement can be seen in the requirement that the perceived demands be lower than their perceived ability. Arguably the most comprehensive definition is that of Palmer (1989), as it refers to stress as a multidimensional concept with ‘psychological, physiological and behavioural’ responses being identified. Taking into account the definitions included in Table 2, stress can be defined as any environmental situation which an individual perceives to be a threat towards their response capability.

In relation to project management, stress can therefore be thought to result from an individual’s response to change. With change being a fundamental part of a project, millennials must be able to handle stress on a daily basis. It is therefore essential that the author gains a grounded understanding of the physiological and emotional responses of stress.

2.5 How Does Stress Occur?

The physiological changes that occur in response to stress were first researched by Cannon in 1897 (Brown and Fee, 2002). With an interest in the physiology of emotions, Cannon based much of his research on animals. After observing involuntary
movements within animals’ stomachs as a result of fear, he became interested in the wider physiological effects of emotion (Brown and Fee, 2002). Cannon’s work (1897) formed the catalyst to further research, which led to the ‘fight-or-flight’ response (Cannon, 1915) being proposed. Cannon (1926) used the term ‘homeostasis’ to describe a mechanism within the body that maintains a normal state of functioning. According to Cannon (1935), as environmental challenges arise, physiological systems in the body must adapt in line with the greater demands placed on an individual’s resources.

The ‘fight-or-flight’ response mechanism (also known as the acute stress response) explains the internal biological changes that occur when an organism is faced with a threat. In short, an organism will either confront or flee from the threat that is faced (Everly and Lating, 2013). Biologically, as stress is detected, a small region in the brain referred to as the hypothalamus activates the sympathetic nervous system and endocrine system. Hormones, namely adrenaline and cortisol, are subsequently released.

The first part of the fight-or-flight response poses the question of whether the initial reaction to an external stressor is emotional or physiological. William James (1884) and Carl Lange (1885) were first to acknowledge the emotional and physiological trade off. Despite their theories being proposed separately, they were later combined to form the James-Lange theory of emotion as both reached similar conclusions: that physiological arousal precedes emotional arousal. In other words, as an external stressor is identified by the body, physiological changes are induced, followed by an interpretation of arousal which causes changes due to emotion. The James-Lange theory of emotion was later challenged by Cannon (1927) and Bard (1934). The Cannon-Bard theory of emotion alternatively argues against emotion occurring as a result of physiological changes, and proposes that they both occur simultaneously after the onset of a stimulating event. Schachter and Singer’s (1962) article on emotional states later overtook the Cannon-Bard theory, outlining that similar physiological experiences would facilitate different emotional responses depending on the context of the stressor. Stressors which arise in a millennials’ home environment may cause little emotional impact on a millennial, as they expect their parents to deal with many of the difficulties faced. However, when millennials enter the working
environment they will not have their parents with them to help deal with stressors. This will cause a significant change in their emotional response.

As outlined earlier, physiologically, females have been shown to respond to stress differently to males. One might expect a different mechanism to the ‘fight-or-flight’ response to accommodate for the physiological differentiation between male and female response to stress. Taylor et al. (2000) agrees, and proposes the ‘tend-and-befriend’ response. Whilst the ‘tend-and-befriend’ response focuses more on the behavioural aspect of how females handle stress, it provides a relatively new insight to potential differences that exist. Tending is concerned with women’s “natural” nurturing activities to protect both themselves and their offspring, whereas befriending refers to attachment to certain social groups in an attempt to minimise the overall risk faced. Taylor et al. (2000) argues that the ‘fight-or-flight’ mechanism is more applicable to males. Their basis for this suggestion is due to males being more likely to fight due to higher levels of testosterone, which is associated with levels of aggression and flight, due to less dependence on others. They highlight that, in times of stress, females are more likely to seek support from others in comparison to males.

Lazarus and Folkman’s (1984) theory of cognitive appraisal highlights that how an individual interprets a stressful event will determine how well they cope. Lazarus and Folkman (1984) make the distinction between primary and secondary appraisal. Primary appraisal encompasses three types of appraisal: irrelevant, benign-positive and stressful. An environmental experience which carries no significance is regarded to have a limited impact upon an individual and would be deemed irrelevant. Benign-positive is where an environmental experience carries a beneficial outcome for an individual. The final component of stress appraisal incorporates harm, threat and challenge. Harm appraisals occur as a result of existing damage, whereas threat appraisals occur when harm is expected to be incurred. The final appraisal of challenge exemplifies a positive outcome in terms of the opportunity to gain something from the experience faced.

Secondary appraisal is where an individual evaluates what they can do to overcome the stressor in terms of different coping methods, as well as assessing their likelihood of success. Central to explaining secondary appraisal further are Bandura’s constructs
of outcome expectancies and efficacy expectation. Bandura (1977) defines outcome expectancies as an individual’s prediction that a particular behaviour will lead to a specific outcome. Efficacy expectation is concerned with whether an individual truly believes that they can perform the required behaviour in order to achieve the outcome needed. With many millennials having sheltered upbringings, there is a possibility that their primary and secondary appraisals will be inaccurate, predominantly because they may believe that they possess a higher coping capability than they actually have due to facing very few negative situations within their lives.

Following Cannon’s work on stress, Selye (1936) developed an alternative model of stress, which is known as the General Adaptation Syndrome (GAS). The GAS (Selye, 1936) encompasses three stages which attempt to explain the human body’s response to a stressor. The three stages are referred to as the alarm reaction, the resistance stage and the exhaustion stage. The alarm stage occurs when the body identifies a threat, which causes the body to register the ‘fight-or-flight’ response identified by Cannon (1915). The biological consequences of the alarm reaction will diminish or reverse completely during the resistance stage of GAS, however, they will return during the final stage of exhaustion. An organisms’ adaptability towards a changing situation is underlined as limited, which reinforces the demands that the project management environment will place on an individual. With high levels of stress being associated with project management, unless it is managed appropriately, the physical toll on the body will eventually lead to health problems, and thus a reduction in performance levels. It is therefore vital that an understanding of how an individual can handle adversity, and thus the stress that occurs in conjunction is gained.

2.6 What Is Resilience?

The construct of psychological resilience is relatively new, with stress and emotional responses to adverse situations forming the basis of much of the current research. The term is used to describe those that positively overcome stressors that arise in life. The main problem associated with research on psychological resilience is how it is conceptualised, with researchers being shown to refer to it as both a trait and a process. Nonetheless, common factors that scholars agree on are the presence of a
threat and positive adaptation. The idea of positive adaptation is extended by Lewis (2011), who reinforces the importance in becoming stronger and more resourceful as a result of an experience. Table 3, highlights a number of resilience definitions that have been used in literature.

<table>
<thead>
<tr>
<th>Definition</th>
<th>Researcher(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The dynamic capacity of an individual to adjust their modal level of ego control depending on the environmental demands faced</td>
<td>Block and Block, 1980</td>
</tr>
<tr>
<td>Personal qualities which enable an individual to thrive in the face of adversity</td>
<td>Connor and Davidson, 2003</td>
</tr>
<tr>
<td>The ability of an individual to maintain normal levels of psychological and physical functioning in the wake of isolated and potentially disrupted events</td>
<td>Bonanno, 2004</td>
</tr>
<tr>
<td>The stability or quick recovery (or even growth) of an individual under extensive adverse conditions</td>
<td>Leipold and Greve, 2009</td>
</tr>
<tr>
<td>Protective factors which change an individual’s response to an environmental hazard which poses a threat of a negative outcome</td>
<td>Rutter, 1987</td>
</tr>
</tbody>
</table>

Table 3 Definitions of Psychological Resilience

Block and Block’s (1980) defines resilience as ‘dynamic’. This suggests that resilience is not a static state of existence, but rather a construct which is characterised by constant change. Therefore, an individual’s response to adversity will change over time alongside environmental demands. Both Connor and Davidson (2003) and Rutter (1987) provide an alternative insight into resilience by outlining ‘personal qualities’ and ‘protective factors’. According to their view, resilience is part of an individual’s personality. Similar to Block and Block (1980), Rutter (1987) outlines the importance of the environment. An individual’s resilience is thought to be dependent on their
interaction with the environment. Bonanno’s (2004) definition extends the meaning of resilience beyond the psychological boundaries by describing resilience as being based on how well an individual is able to maintain both their psychological and physical functioning in highly disruptive events. Similarly, Cannon’s work on homeostasis (1926) shows that the extent to which an individual can maintain their equilibrium will determine how well they can handle adversity. The final definition by Leipold and Greve (2009) outlines the terms ‘stability’ and ‘recovery’. When considering stability, further consideration is given to the homeostatic functioning of an individual. Despite being used alongside stability, recovery represents a different meaning. Recovery signifies that an individual’s equilibrium had been disrupted and has since been restored to normal, whereas stability suggests an individual has been able to maintain their regular levels of functioning. An interesting aspect of Leipold and Greve’s (2009) definition is an individual’s potential for growth following an adverse experience. This further highlights the extent to which millennials are potentially limiting themselves by allowing their parents to handle much of the adversities in their lives. By considering the definitions in Table 3, the author has proposed the following definition of resilience: an individual’s ability to positively overcome adverse environmental conditions that arise.

The need for resilience in project management is underpinned by the volume of projects that are shown to fail each year (Thomas and Mengel, 2008). Millennials must be aware of the challenges that await them, otherwise they are likely to be overwhelmed by the daily stress and struggles the profession will inevitably bring.

2.7 Resilience as a Trait

Early research on resilience as a trait outlines that individuals use a range of personality characteristics to overcome adversity. These characteristics were first identified by Block and Block (1980) terming them as ‘ego resilience’. Rutter (1985) refers to these characteristics as protective factors. Table 4, outlines personality traits which have been used to describe resilient individuals within literature.
Kobasa (1979) was first to identify hardiness as a trait (or set of traits), which enables individuals to deal with stress effectively. Central to hardiness are characteristics including control, commitment and challenge. Kobasa (1979) signifies that control refers to an individual’s belief that they can influence life events, whereas commitment is the ability of an individual to embrace and involve themselves in life activities. The final characteristic of challenge refers to an individual’s desire to accept change and continually develop. Interestingly, these characteristics are often displayed by individuals who possess a high AQ®. For example, they are shown to have higher levels of perceived control over adversity. This makes an individual committed to overcoming the adversity faced, as they have a strong self-efficacy. The characteristic of challenge aligns with Stoltz’s (1997) analogy of life as an ascent up a mountain, with continuous climbing needed in order to succeed. Closely related to hardiness is mental toughness. The similarities with hardiness are shown by Clough et al. (2002) using Kobasa’s (1979) characteristics of commitment, challenge and control to describe mental toughness. They extend these characteristics further for mental toughness by adding confidence.

Tugade and Fredrickson’s (2004) identification of positive emotion as a barrier against adversity is based on the broaden-and-build theory of positive emotions (Fredrickson, 1998). This theory suggests that the momentary-thought action is reduced when an individual uses negative emotions in the face of adversity, thus causing an individual to react in a specific way. Conversely, when positive emotions are used individuals are thought to broaden their capability to respond as a consequence of greater cognitions and behaviours coming to mind (Fredrickson, 1998). Despite the lack of
empirical support gained, Seligman’s work on learned optimism (2011) conveys a similar message. The idea of positive emotion as a buffer against stress is extended by Campbell-Sills et al. (2006) who identify extraversion as a trait which is likely to enhance the positive emotions experienced by an individual. This is due to extroverted people’s tendency to form relationships more easily. Despite the trait of extraversion being shown to be a useful predictor of resilience, the author will avoid examining further due to its complexity, with it being shown to be correlated to a wide range of emotional states, including anxiety and depression. Further support is shown by Zautra et al. (2005), who after examining a number of chronic pain sufferers found that positive affect helped to reduce negative affect, thus reducing the pain and stress that they faced on a daily basis.

Self-efficacy as a trait stems back to the work of Bandura and can be defined as an individual’s belief, which they will be able to successfully complete something as a consequence of their ability (Bandura, 1994). Self-efficacy is based on the premise that individuals will only attempt things that they believe they can achieve. Those that possess high levels of self-efficacy view the most difficult challenges as achievable. Their perception is that challenges are there to be mastered, as opposed to threats which must be avoided (Bandura, 1994). Similar to the traits of hardness and mental toughness, a high self-efficacy reflects the Control dimension of CORE, due to the ways in which individuals who have high self-efficacy perceive challenges. One of the underlying problems with resilience being considered as a trait, is that it blames an individual on a personal level for not being able to overcome adversity, as opposed to investigating the underlying differences in why some people still succeed in difficult circumstances.

2.8 Resilience as a Process

When resilience has been conceptualised as a process, it is thought that it can be learned over time. As a view, this remains the most popular within contemporary literature. Unlike the perspective which views resilience as a trait, the classification of resilience as a process highlights that responses to adversity will vary depending on the situation and the time that it occurs. Schachter and Singer’s (1962) work on
emotional states, who outline the impact that the context of a stressor can have on an individual's physiological response expresses a similar impact. This view suggests that resilience is largely based on the interaction between an individual and the environment (Windle, 2011) and thus agrees with much of the work on cognitive appraisal by Lazarus and Folkman (1984). With resilience being based on the person-environment interaction, millennials must proactively seek more difficult experiences if they are to improve their resilience. Stoltz (1997) agrees with resilience being seen as a process by highlighting that an individual can improve their AQ® score over time. Rutter (1981) provides further support by outlining that resilience changes along with circumstances.

2.9 How Does Someone Become Resilient?

There is a possibility that millennials may be able to become resilient as a consequence of observing leaders who possess high levels of resilience. Bandura’s (1962) work on vicarious learning proposes that individuals may adopt a different style of behaviour from observing others and thus conveys a similar message. Despite the obvious potential advantage of becoming more resilient, vicarious learning also poses a threat. For instance, a leader who responds to adversity negatively, may cause an individual or even a project team to learn incorrect behaviours with regard to responding to adversity positively. As mentioned, millennials’ parents are perceived to have taken responsibility for many of the adversities in their children’s lives. However, their children have not become more resilient as a consequence of observing them. This is due to them not developing their self-efficacy, with Kolb’s (1984) experiential learning cycle not being entered. Bandura’s (1971) social learning theory provides reinforcement which outlines the potential of individuals to learn by direct experience. Bandura (1971) states that the extent to which learning takes place is largely dependent on actions that follow in terms of reward and punishment. Further suggesting that helicopter parenting has minimised the learning of millennials, with very few punishments being given when compared to the regular rewards they are believed to have received.
Wolpe (1959) developed systematic desensitisation as a method for helping people overcome their phobias. Systematic desensitisation works by altering an individual’s fear activation cues into cues for fear inhibition. The method involves progressive exposure to their phobia, followed by being taught a range of relaxation techniques. Due to adversity being impossible to predict, it cannot be classed as a phobia. However, the idea of exposing individuals to simulated levels of adversity may help an individual to become more resilient over time. This is due to an individual gaining experience of adverse situations, which they can reflect and conceptualise in line with Kolb’s (1984) experiential learning cycle. Consequently, an individual is likely to develop greater coping resources, thus making an individual more resilient. Much of the resilience research agrees with the possibility that the potential exposure to adversity decreases vulnerabilities. They refer to this as the ‘steeling’ effect (Rutter, 2012). However, it should be noted that they also recognise that exposure to adversity may lead to a ‘strengthening’ effect, which refers to the increasing vulnerabilities (Rutter, 2012).

An additional way in which an individual may be able to enhance their resilience is through cognitive restructuring (Meichenbaum, 1975). Cognitive restructuring stems back to the work of Ellis (1962) on Rational Emotive Therapy (RET). Ellis (1962) argues that perceptions are the cause of stress related behaviours, and that an individual’s perceptions can be changed over time. Ultimately, cognitive restructuring helps to increase the positive thoughts that an individual has when a negative event occurs. Considering Seligman’s work on learned optimism (2011), significant improvements in how an individual manages adversity and stress are likely to be seen.

Now that extensive literature related to the research question has been reviewed, an understanding of how the author is going to measure millennials’ responses across the dimensions of CORE is needed. An appropriate research methodology will therefore form the next chapter.
Chapter 3 Research Methodology

An appropriate research methodology must be selected in order to successfully answer the research question. To achieve this an in-depth understanding of the chosen methodology is essential, with a clear appreciation of the benefits and limitations. This section will therefore provide a systematic plan, which outlines the intentions of the researcher with regards to how they will answer the research question.

3.1 Research Question

How do millennials respond to adversity in relation to the “CORE” dimensions of Control, Origin and Ownership, Reach and Endurance, and how does this correlate with their performance in project teams?

3.2 Objectives

1. To explore Stoltz’s AQ® theory and its correlates.
2. To explore the relationship between the CORE of AQ® and work performance.
3. To discuss the demands that the project environment makes on the individual.
4. To assess how millennials measure up on the AQ® profile.
5. To propose methods to continuously develop CORE in millennials for them to contribute optimally to project teams.

3.3 Background of Study

This study seeks to determine how millennials cope with adversity. To do this Stoltz’s (1997) AQ® theory was implemented. The AQ® (Stoltz, 1997) was proposed as a way to measure and strengthen an individual’s response to adversity. Central to an individual’s response to adversity are the AQ® dimensions of CORE; Control, Origin and Ownership, Reach and Endurance. Control is concerned with an individual’s perceived level of control over adversity. Origin and Ownership refers to the specific
cause of adversity and the degree to which an individual owns the outcome. The final two dimensions are Reach and Endurance which signify the extent to which adversity is allowed to spread into other areas of an individual’s life and the magnitude of the adversity faced, in terms of how long an individual perceives it will last (Stoltz, 1997).

3.4 Research Approach

In order to answer the research question, a deductive research approach was selected. This is due to this research paper using the CORE dimensions of Stoltz’s (1997) AQ® theory to test millennials’ responses to adversity. Central to a deductive approach is the drive to determine a correlation (Saunders et al. 2016). The population that was examined were millennials, with the main context being project management and the sub-variables forming the dimensions of CORE. Ultimately, undertaking a deductive approach allowed the researcher to statistically generalise the selected population, given the results obtained from undertaking numeric analysis.

The researcher has proposed both a null and alternative hypothesis for this research paper. The null hypothesis is that males and females will not be different across the dimensions of CORE. Whereas, the alternative hypothesis is that the CORE dimensions will differ among male and females.

The most frequently used forms of data are qualitative and quantitative. Denzin and Lincoln (2003) highlight the focus of qualitative research as the development of processes and meanings that cannot be measured numerically. In contrast, they outline the focus of quantitative research as the measurement and analysis of causal relationships between variables. Both types of data provide a researcher with a range of benefits and limitations. Due to this research paper seeking to identify whether there is a trend among the millennial generation and if there are any specific gender differences, quantitative research will be undertaken. Quantitative research allows researchers to test a larger sample size, as well as make generalisations about a specific population with relative ease. The main drawback to quantitative research is to do with the way in which the social and cultural aspects are ignored (Myers, 2013).
3.5 Data Gathering Instrument

To collect data, the Adversity Quotient Profile® (AQP®) was used. The AQP® is an online forced-based questionnaire and consists of approximately 14 scenarios, which requires participants to answer four questions relating to each situation, by using a scale to rank their answers from 1-10. The questionnaire measures an individual’s resilience, by examining how they respond to a wide range of adverse events across the dimensions of CORE. In total, the questionnaire takes 10 minutes to complete. Due to the agreement (see Appendix A) between the researcher and Peak Learning (owner of the questionnaire) questions were not allowed to be displayed within this research paper.

As a forced-based questionnaire the AQP® removes the option of a non-response, thus forcing participants to select a response choice that provides the closest reflection of their true feelings (Lavrakas, 2008). This assures the researcher that participants will provide actual responses, which in turn ensures a larger volume of completed surveys that can be analysed (Lavrakas, 2008). The main drawback associated with forced-based questionnaires is the possibility of subjective interpretation (Bryman, 2012). To minimise the extent of this occurring, the author provided participants with an information leaflet which clearly advised them on what to expect. To ensure that they acknowledged the leaflet, much of the instructions were repeated over email.

3.6 Validity and Reliability

The AQP® has been subject to widespread use across the world, with respondents from 51 countries using it (Peak Learning, 2016). When examining the construct validity of the AQP®, the components of convergent and discriminant validity should be considered. Convergent validity refers to whether the AQP® measures what it is intended to measure, thus the response of an individual across the dimensions of CORE. Whereas, discriminant validity is concerned with whether the CORE dimensions of AQP® does not measure characteristics outside of Stoltz’s (1997) theory (Eysenck, 2004).
With regard to the AQP®'s convergent validity, Peak Learning have released validation studies based on approximately 12 high-profile clients. From examining these validation studies, statistical evidence can be derived which supports the convergent validity of the AQP®. For example, a study undertaken in conjunction with a non-profit organisation found the dimensions of Control, Ownership and Endurance to be the most predictive of retention and commitment to change. This was shown through positive correlations between AQ® and affective commitment (r=.394) as well as between AQ® and the particular commitment profile employed (r=.387) (Grandy, 2009).

The discriminant validity of the AQP® can be determined by examining the inter-correlations between AQ® and the sub-variables of CORE (see Table 5).

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>O</th>
<th>R</th>
<th>E</th>
<th>AQ®</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>0.494</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>0.313</td>
<td>0.275</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>0.349</td>
<td>0.323</td>
<td>0.724</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>AQ®</td>
<td>0.727</td>
<td>0.723</td>
<td>0.760</td>
<td>0.781</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Table 5 Inter-Correlations between Dimensions of CORE (Grandy, 2009)

As seen in Table 5, Reach and Endurance have the highest correlation with 0.724. All of the other scale scores reflect a moderate correlation. Despite Reach and Endurance being seen to have the highest correlation, the four sub variables of AQ® still possess a distinctive level of variance. This advocates that as proposed, they measure different but related aspects of AQ®, thus showing the sub-variables of CORE to have a good discriminant validity.

A further component of validity which can be used to examine the AQP® is predictive. Predictive validity refers to the ability of the AQP® to make accurate predictions of particular attitudes and behaviours (Saunders et al. 2016). The AQP®'s predictive reliability is confirmed through a study involving a major UK insurance company outlining significant correlations between multiple health, life and work factors. Of particular noteworthiness, is AQ® scores being shown to reflect employee work...
attendance. This was discovered through significant correlations being shown between the number of days absent from work and with the number of absentee incidents. This outlined that the higher an individual’s AQ®, the fewer their absences from work (Grandy, 2009).

The consistency of the AQP® as a measure can be assessed from examining its reliability. To determine the extent of its reliability, the factors of stability and internal reliability should be considered (Bryman and Bell, 2003). Stability refers to whether the AQP® produces results of similar nature over time, whereas internal reliability is concerned with whether participants scores across the CORE dimensions are related. Due to the positive and negative impact in which life experiences can have on an individual’s AQ® score, internal consistency formed the main focus (Grandy, 2009).

The AQP®’s reliability is underpinned by studies undertaken by an independent psychometrician, in which all studies have shown the AQ® and CORE dimensions to be very reliable. Grandy (2009) outlines the internal consistency of the AQ® and CORE dimensions by using Cronbach’s alpha (see Table 6). Cronbach’s alpha is a widely recognised measure of internal reliability that researchers use to determine the reliability of a psychometric test (Bryman and Bell, 2007).

<table>
<thead>
<tr>
<th>Scale</th>
<th>( \alpha )</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.82</td>
</tr>
<tr>
<td>O</td>
<td>0.83</td>
</tr>
<tr>
<td>R</td>
<td>0.84</td>
</tr>
<tr>
<td>E</td>
<td>0.80</td>
</tr>
<tr>
<td>AQ®</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Table 6 Cronbach’s Alpha (\( \alpha \)) Reliability Estimates (Grandy, 2009)

Cronbach’s alpha values range from 0-1. The nearer to one they are the more internal reliability a psychometric test is thought to have. Table 6, therefore outlines that the AQ® and sub variables of CORE are estimated to have high internal reliability. Additionally, alpha scores help to confirm the AQP®’s discriminant validity by showing inter-correlations to be lower than the overall reliabilities of each sub-variable.
3.7 Sampling Technique

The research was limited to British millennials (individuals born between 1980-2000). The motive was driven by the author’s interest in understanding how British millennials respond to adversity. Snowball sampling was used to select participants. Snowball sampling otherwise known as chain referral sampling, which is when referrals are made between participants or where participants recognise others who satisfy the characteristics of the sample needed (Biernacki and Waldorf, 1981). There is a general misunderstanding that snowball sampling will proceed by itself. In reality, it requires the author to control and develop the sample size. If uncontrolled it is possible that the verification of eligibility with regard to participants will become harder to confirm as the referrals become more distant (Biernacki and Waldorf, 1981). Further problems associated with snowball sampling surround the quality of data, this is mainly due to selection bias. Selection bias occurs as a result of the non-random nature of snowball sampling, with it being largely based on the subjective decision of those who are first assessed. This increases the likelihood of individuals being included on a basis of inter-relationships, meaning that the data will reflect much of an individual’s social network. This poses the danger of participants sharing similar traits and views, which ultimately increases the likelihood of sampling errors.

The author was aware of the potential pitfalls associated with snowball sampling and tried to reduce the likelihood of them occurring. Firstly, to ensure all participants who were referred were eligible i.e. born between 1980-2000, the author maintained an email thread, and thus communicated with each participant in question. The risk of selection bias and sampling errors was reduced by the author collecting a larger sample size of 100 participants in total.
3.8 Data Gathering Procedure

In order to gain permission to use the AQP® the author needed to collaborate with Peak Learning. The first step to achieving this was to access Peak Learning’s website (http://www.peaklearning.com), followed by completing a researchers’ request form, which required completing the following details:

- Name and contact details
- Institution
- Research Objectives
- A brief summary of the study

Following the completion of this form, Peak Learning contacted the author by email, requesting further details on who the participants will be as well as the period of data collection. Once received, Peak Learning granted full permission for the author to use the AQP®, and enforced that the questionnaire would only be valid for 100 participants. Before assigning the author with a unique URL, which would allow them to begin online data collection, Peak Learning needed the author to sign and return a research agreement to ensure their IP remained protected (see Appendix A). This research agreement was comprised of 10 steps and was valid throughout the author’s project. The author had to commit to providing Peak Learning access to all of the data as well as a copy of the research paper upon completion. A further and highly important commitment was that the author had to agree not to include any of the AQP® questions within this research paper.

With the research protocol requiring the collection of primary data, ethical approval was needed. To obtain ethical approval, the author took all of the necessary precautions in line with the BSREC committee of the University of Warwick. The author submitted their application on the 1st April 2016 and was granted full ethical approval on the 4th April 2016 with the reference number of REGO-2016-WMG-0055 being given (see Appendix B).

Data collection began on the 4th April 2016 and ended on the 15th April 2016. In total, 100 British male and female millennials completed the AQP®. Data collection was
completed online, with participants being given a unique URL to follow, as well as a participant information leaflet.

3.9 Data Analysis

As outlined this research paper will primarily employ quantitative methods; this is due to the AQP® providing the author with numerical data, with each participant receiving a score for each of the CORE dimensions, as well as an overall AQ® score. To analyse differences among male and female’s responses to adversity within the data, statistical analysis was undertaken using SPSS software.

With a normal distribution being shown a parametric t-test was selected to test the differences between male and female AQ® scores. The basis of this selection was due to a t-test being widely recognised, as a way in which the means of two groups can be assessed to see whether there are statistically significant differences between the groups. Once the t-test was completed, Levene’s Test for Equality of Variances was observed to see the amount of variability between AQ® scores among males and females. One of the main limitations with this was to do with it only examining male and female mean scores, with no regard to the variance.

Following this test, a mixed ANOVA was undertaken in order to test the overall differences in scores across the sub-scales (within subjects), with gender being included as an interaction factor (between-subjects). To determine the effect of age on the dimensions of CORE a one-way ANOVA was used. This was followed by using a one-way ANOVA to examine gender separately to establish whether responses differed across the dimensions of CORE. Correlation between the dimensions was then determined using Pearson’s r. This was followed by examining the relationship between age and AQ®. Pearson’s r as a method is used to examine interval and ratio variable relationships (Bryman and Bell, 2007). A potential limitation with Pearson’s r is to do with the way in which it implies that there is a relationship between two variables, and therefore, at most, a correlational analysis can show the degree to which each variable is co-related, but stops short of establishing a causal effect. However, in the present case, there are four dimensions that are thought to be
correlated; as such, Pearson’s r is most suitable to explore these relationships. Finally, frequency and central tendency analyses on participant age were performed using Microsoft Excel software.

3.10 Limitations of the Research Methods

One of the major limitations to the research is concerned with response bias. This is due to the AQP® questionnaire requiring participants to answer questions relating to sensitive issues. This directly increases the likelihood of social desirability bias. Social desirability bias is where a participant selects socially desirable responses, in comparison to responses that provide a true reflection of their feelings (Grimm, 2010). Another limitation associated with bias is related to the researcher belonging to the millennial generation. This may lead to results being interpreted and compared to themselves as opposed to undertaking a wider view. Finally, the research methods employed rely primarily on quantitative data. This limits the extent to which the results are valid, due to interpretation being solely based on the quantification of data.

The threat of social desirability occurring could not be completely removed. The author tried to decrease its prevalence by reassuring all participants that their results would remain secure, with only Peak Learning and their project supervisor having access to individual names. The second limitation of the author belonging to the same population to which was being examined was reduced by quantitatively analysing statistical data. Finally, despite no attempt to address the final drawback of primarily focusing on quantitative data, future research could employ a combination of qualitative and quantitative research methods.
Chapter 4 Results

In order to determine how the millennial generation responds to adversity the results collected from the AQP® were analysed using SPSS software. All analysis will be accompanied with explanations which help to clarify the reader’s understanding of the results obtained. The results presented within this section will form the basis of the analysis and discussion.

4.1 Results

The sample size was 100, consisting of 50 males and 50 females.

<table>
<thead>
<tr>
<th>Mean Age</th>
<th>Mean Male age</th>
<th>SD</th>
<th>Mean Female age</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.71</td>
<td>23.72</td>
<td>2.08</td>
<td>23.70</td>
<td>1.94</td>
</tr>
</tbody>
</table>

Table 7 Mean Age of Male and Female Participants with Standard Deviation (SD)

Participants’ ages ranged from 21-30 with the most frequent age being 22 (Table 7). As the majority of participants were aged between 21 and 24, each age constituted an individual age group. The skewed age groupings can be explained by the majority of participants being university students. In total, 11 participants were born during 1980s whereas the majority, 89, were born in 1990.

<table>
<thead>
<tr>
<th>Mean AQ® score</th>
<th>SD</th>
<th>Male mean AQ®</th>
<th>SD</th>
<th>Female mean AQ®</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>132.52</td>
<td>14.92</td>
<td>131.60</td>
<td>16.02</td>
<td>133.44</td>
<td>13.83</td>
</tr>
</tbody>
</table>

Table 8 Overall Mean AQ® Score and Mean AQ® Scores of Males and Females with Standard Deviation
Results

Table 9 Mean CORE Scores with Standard Deviation

<table>
<thead>
<tr>
<th></th>
<th>C score</th>
<th>SD</th>
<th>O score</th>
<th>SD</th>
<th>R score</th>
<th>SD</th>
<th>E score</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>33.91</td>
<td>6.49</td>
<td>37.58</td>
<td>7.25</td>
<td>29.40</td>
<td>4.95</td>
<td>31.65</td>
<td>5.30</td>
</tr>
</tbody>
</table>

The SD for the mean Origin and Ownership dimension highlights the greatest internal variability among the sub-scales of CORE (Table 8 and 9). This may suggest that Origin and Ownership are a less concrete concept than the other three dimensions. Greater variability suggests that this concept may not be as well defined.

Table 10 Mean Comparison of Male and Female CORE Scores with Standard Deviation

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C</td>
<td>SD</td>
<td>O</td>
<td>SD</td>
</tr>
<tr>
<td>Mean</td>
<td>33.70</td>
<td>5.32</td>
<td>36.96</td>
<td>7.64</td>
</tr>
<tr>
<td></td>
<td>34.12</td>
<td>7.52</td>
<td>38.20</td>
<td>6.86</td>
</tr>
</tbody>
</table>

Table 10 shows that women’s scores on Control have the greatest internal variability, however, for males Origin and Ownership is shown to have the greatest internal variability. This may suggest that questions concerning Control and Origin and Ownership in the AQP® were more subjective, and thus were interpreted differently among participants. Further, Table 10 shows that females have slightly greater scores on three dimensions: Control, Origin and Ownership, and Reach. In contrast, males have slightly higher scores on the Endurance dimension.

Table 11 Highest and Lowest AQ® Scores

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest AQ®</td>
<td>Lowest AQ®</td>
</tr>
<tr>
<td>score</td>
<td>score</td>
</tr>
<tr>
<td>174</td>
<td>92</td>
</tr>
</tbody>
</table>

Table 12 Classification of AQ® Scores (Stoltz, 1997)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low AQ®</td>
<td>Moderate AQ®</td>
<td>High AQ®</td>
</tr>
<tr>
<td>0-59</td>
<td>95-134</td>
<td>166-200</td>
</tr>
</tbody>
</table>
Table 13 Classification of Individual CORE Dimensions (Stoltz, 1997)

<table>
<thead>
<tr>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-23</td>
<td>24-37</td>
<td>38-50</td>
</tr>
</tbody>
</table>

Table 11 outlines the highest and lowest overall AQ® scores of participants. Using Stoltz’s (1997) classification outlined in Table 12, and the mean AQ® score of 132.52, it is clear that the sample reflects a moderate AQ®. With respect to the individual dimension scores, females had a high Origin and Ownership score according to Stoltz (1997; Table 13).

An independent t-test was performed to examine the differences in male and female AQ® scores. The independent t-test results show that, although there were differences in average AQ® scores (Table 14), they were not statistically significant (t(98)=.615, p=.540; for all SPSS outputs see Appendix C). This conflicts with earlier findings from Grandy (2009) who found significant differences (albeit small) on all dimensions except Ownership. A potential explanation for this could be the difference in sample size. In Grandy (2009), the sample size was 1743 whereas in the present study it was 100. With a larger sample, it may have been possible to observe similar effects.

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ®</td>
<td>98</td>
<td>.615</td>
<td>.540</td>
</tr>
<tr>
<td>C</td>
<td>98</td>
<td>.322</td>
<td>.748</td>
</tr>
<tr>
<td>O</td>
<td>98</td>
<td>.854</td>
<td>.395</td>
</tr>
<tr>
<td>R</td>
<td>98</td>
<td>.483</td>
<td>.630</td>
</tr>
<tr>
<td>E</td>
<td>98</td>
<td>-.319</td>
<td>.750</td>
</tr>
</tbody>
</table>

Table 14 Independent T-test Output for Dimensions between Males and Females

Next, the overall differences in scores across the sub-scales were tested (within-subjects), and gender was included as an interaction factor (between-subjects). This was performed using a mixed ANOVA (Table 15).
Results

Table 15 Mixed ANOVA Results Showing the Differences in Scores across Dimensions

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>DF error</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effect</td>
<td>3</td>
<td>294</td>
<td>39.58</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Interaction</td>
<td>3</td>
<td>294</td>
<td>.339</td>
<td>.797</td>
</tr>
</tbody>
</table>

The results of the ANOVA show that there is a significant main effect of the subscale (F(3,294)=39.576 p<.05) in the average scores across the dimensions, without taking gender groups into account. The interaction effect with gender is not significant (F(3,294) =.339 p=.754), suggesting that the difference between subscale scores does not vary dependent on gender.

Table 16 One-Way ANOVA Examining the Effect of Age on AQ® and the Dimensions of CORE

<table>
<thead>
<tr>
<th></th>
<th>DF</th>
<th>DF error</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>9</td>
<td>90</td>
<td>1.966</td>
<td>.052</td>
</tr>
<tr>
<td>O</td>
<td>9</td>
<td>90</td>
<td>1.231</td>
<td>.286</td>
</tr>
<tr>
<td>R</td>
<td>9</td>
<td>90</td>
<td>1.794</td>
<td>.080</td>
</tr>
<tr>
<td>E</td>
<td>9</td>
<td>90</td>
<td>1.160</td>
<td>.330</td>
</tr>
<tr>
<td>AQ®</td>
<td>9</td>
<td>90</td>
<td>.862</td>
<td>.562</td>
</tr>
</tbody>
</table>

Groups were organised based on each individual age, thus forming ten groups. Table 16 shows that there was no significant effect of age on the dimensions of CORE and AQ®. This is not surprising when considering that millennials have been grouped as one generation and are therefore likely to share common values and perspectives. With the mean age of millennials being 23.71, the sample largely reflects that of the younger generation, this may explain why no significant effect was observed.

Further analysis was performed to see whether there were differences within each gender group.
When each gender group was examined alone, there were no statistical differences between the dimensions within males or females (see Table 17 and 18). In light of these findings, the experimental hypothesis (see Chapter 3) is not supported.

Pearson’s r was performed to check whether the dimension scores were correlated with one another. The results show that the Control and Origin and Ownership scales are weakly but significantly correlated ($r=0.31, p<0.01$); and a moderate significant relationship between Reach and Endurance ($r=0.51, p<0.01$; Table 19). There was no significant association between Control and Endurance, Control and Reach, Origin and Ownership and Endurance or Origin and Ownership and Reach, supporting Stoltz’s (1997) definitions of the CORE dimensions. In a previous study by Grandy (2009), it was found that the two strongest correlations were between Control and Origin and Ownership, and Endurance and Reach. In the present study, the same two correlations were the strongest and were also significant. Although the sample size in the present study is substantially smaller than Grandy (2009), findings suggest that these relationships are reliable.
Expanding further on the inter-correlations found, it becomes clear that Stoltz's (1997) definitions of the dimensions are valid. For example, having high levels of perceived control over adversity increases the likelihood of an individual taking ownership as they feel that it is within their capability to overcome the adversity faced. Conversely, when an individual allows adversity to reach into other areas of their lives, they are increasing the extent to which they will perceive it to last.

Finally, a bivariate correlation was performed between AQ® and age to examine if there was a relationship between the two, i.e., if AQ® increases with age. The test revealed that there is no significant relationship between age and AQ® scores (r=0.108, p=.287; see Appendix C).

To conclude, this section has revealed a number of findings which will help the author provide a thorough answer to the research question. Notable findings include millennials being shown to possess a moderate AQ®, as well as inter-correlations between dimensions supporting the work of both Grandy (2009) and Stoltz (1997). The next chapter will form the analysis and discussion which will address these findings in depth.
Chapter 5 Analysis and Discussion

This section will provide the reader with a comprehensive understanding of the results obtained. Results will be explained in depth with reference to the concepts from the literature review. The overall positive and negative implications of results will be discussed throughout, with continual application to millennials’ ability to work within modern project teams.

5.1 Analysis of Results in Relation to Literature

Results revealed no significant difference between male and female AQ® scores. This implies that gender has no bearing on whether an individual possesses a high or low AQ®. Interestingly, Grandy (2009) disagrees with the results obtained by outlining small but significant differences between male and female AQ® scores. These findings can be accounted for by Grandy (2009) employing a considerably larger participant sample. Examining the mean scores closely showed that females had a slightly higher AQ® compared to males. This was consistent across all of the dimensions of CORE apart from Endurance.

These findings provide contradictory evidence to literature which suggests that gender is a determinant of the stress response (Matud, 2004; Frankenhaeuser et al. 1976). For example, Matud’s (2004) study which examined gender differences in stress and coping found females to suffer from greater daily stress as well as chronic stress in comparison to males. In line with the former, one would have expected females to have had a lower AQ®. However, there are notable disparities in Matud’s (2004) research design with a significantly larger sample and no specific focus on generation. Frankenhaeuser et al.’s (1976) study focuses predominantly on an individuals’ physiological response to stress as oppose to the AQ®’s psychological emphasis.

Age was found to have no significant effect on the dimensions of CORE or AQ®. In addition, age was also not significantly correlated with AQ® scores. This opposes Grandy’s (2009) findings where AQ® was found to increase with age. The differences between the findings of the two studies can be accounted for by the majority of participants being aged between 21-24. This outlines that much of the results obtained only reflect the younger millennial generation. A greater number of participants were
therefore needed who were born in the 1980’s to confirm Grandy’s (2009) results. This is due to the likelihood of being exposed to adverse events increasing as an individual becomes older. In turn, if an individual does gain more experience of adversity with age, the complexity of their schemata will increase, which will allow them to improve their response capability towards adversity over time. Younger millennials’ responses suggest that they answered the AQP® based on how they envision themselves to behave within the workplace in the future.

The mean AQ® score of 132.52 for males and females reflects a moderate level of resilience. It is also worth noting that, out of the entire sample, the lowest AQ® score was 92, whereas the highest was 174. Using Stolitz’s (1997) classification underlines that not one millennial had a ‘low’ AQ®. Considering millennials lack of experience of adverse situations, cognitive bias may provide an explanation for their higher than expected scores. Cognitive bias would support the notion that millennials’ exposure to ‘helicopter parenting’ has caused them to perceive their ability to handle adverse situations as higher than it actually is. This high regard for themselves fuels their narcissistic nature. The idea that cognitive bias may explain why no differences were observed is supported by Judge et al. (2006) who found narcissism to cause cognitive bias over leadership, task performance and contextual performance factors.

Cognitive bias may have a number of positive and negative consequences for millennials entering the project management environment. For instance, moderate AQ® scores indicate that millennials possess a strong self-efficacy. By believing in their own ability, it is likely that they will be able to persevere in the unstable environment to which projects are delivered. Conversely, millennials may become overwhelmed when they realise that their self-efficacy was false, and that they are unable to overcome the stressors faced. The realisation that their self-efficacy was indeed false may lead to millennials adopting learned helplessness over time. This would confirm the idea that helicopter parenting has disrupted millennials’ primary and secondary appraisals of stress (Lazarus and Folkman 1984). How an individual appraises a stressful event determines how well they cope, if millennials realise that their coping resources are not real, a dramatic loss of confidence will occur, which in turn will make them question their performances across a wide range of situations.
The challenge for millennials will be to maintain their optimism when they realise that they cannot overcome the adversity faced.

Alternatively, the moderate AQ® score may portray an accurate reflection of how millennials respond to adversity. The AQP® supports the conceptualisation of resilience as a process as opposed to a trait due to its focus on various environmental situations. Resilience as a process is concerned with an individual’s interaction with the environment, and how they use different processes to prevent them from being influenced by risk factors. Moderate levels of resilience suggest that millennials think they are ready to experience the environmental adversity which will arise from varying degrees of risk, uncertainty and complexity in project management. Millennials’ scores denote that their perception of adversity is largely positive. Positivity is directly linked to optimism, which suggests that millennials’ responses to adversity will continue to improve over time. Ultimately, optimism will increase the probability of millennials perceiving adversity to be challenging as oppose to threatening. This will ensure that they stay motivated to address the adversity faced over an extended period of time. Seligman’s (2011) work on learned optimism and Tugade and Fredrickson’s (2004) broaden-and-build theory provide support for this. Due to the complexity of the project management environment in terms of multiple projects and programmes often being ran at once, millennials’ resilience will be tested on a daily basis. Millennials are therefore more suited to working as part of a project team, where they can become exposed regularly to significant adversities, whilst not having the burden of being responsible for major decisions at critical stages of a project. Working as part of a project team will also ensure millennials receive high levels of social support, thus ensuring they continue to appraise adverse events as positive (Barrera, 1986).

In line with earlier results, females were shown to have higher scores on three of the measures; Control, Origin and Ownership and Reach. Whereas, males were shown to have higher Endurance scores. For both males and females Origin and Ownership is seen to be the highest dimension, with females being classified as high in comparison to males’ moderate score. Having a high Origin and Ownership and a moderate Control score might signify that female millennials are aware of their lack of experience in handling adversity. For instance, taking high levels of ownership may suggest that they are eager to learn and gain further experiences. This aligns with
Kolb’s (1984) experiential learning cycle which shows the importance of active experimentation in consolidating learning. Due to the percentage of people now obtaining a degree, workplace entry requirements are becoming increasingly strict. This is causing a large number of millennials to stay in education for longer periods, instead of going directly into work. In terms of working in a project team, millennials must be careful that their eagerness to improve does not cause them to become over aroused. The dangers of over arousal are highlighted by the Yerkes-Dodson law (1908) where arousal causes performance to increase but only up to an optimal point of arousal, after which performance dramatically declines.

The slightly higher scores for females across the dimensions of CORE can also be attributed to women’s natural instinct for nurturing and supporting others (Taylor et al. 2002). The tend-and-befriend response may signify that women may care more about their response across a wider range of events, as opposed to narrower interests in male participants.

Reach is the lowest scoring dimension for both males and females. Millennials may be able to handle moderate adversities with relative ease, however, when faced with significant adversity they are likely to become particularly vulnerable. This may pose a threat to millennials’ performance in project management. To illustrate, if millennials are exposed to numerous failed projects within the early stages of their career, they may begin to believe that there was nothing they could have done to avoid the outcome, eventually causing them to adopt learned helplessness. Added support for the earlier suggestion that millennials would be initially suited to working as part of a project team is therefore gained.

The relationships between the dimensions of CORE were confirmed. Control and Origin and Ownership were shown to be weakly but significantly correlated, whereas Reach and Endurance were shown to have a moderately significant correlation. These signify that, on average, as Control increases so will Origin and Ownership, and as Reach increases so will Endurance. These findings align with the definitions of the CORE dimensions. For example, individuals who possess higher scores on the dimension of Control perceive that they can influence the adversity faced which in turns leads to individuals taking ownership of the adversity. The incremental
relationship that is shown between the Reach and Endurance dimensions can be explained by those who possess lower AQ® scores. For instance, reach indicates the extent to which an individual allows adversity to affect other areas of their lives, whereas Endurance refers to how long the adversity will last. If an individual cannot handle adversity, it will almost certainly extend to other areas of their lives, thus increasing the likelihood that it will be perceived as long lasting. Further support for the dimensions of CORE is gained from there being no associations between Control and Endurance, Control and Reach, Origin and Ownership and Endurance, and Origin and Ownership and Reach. This can be explained by those who possess higher AQ® scores. For instance, high levels of perceived control prevent adversity from spreading into other areas of an individual’s life. Similarly, individuals who take ownership over adversity remove the risk of adversity being perceived as long lasting.

The results obtained confirm Stoltz’s (1997) notion that Control is the most important dimension of CORE. In terms of work performance, the more control an individual perceives themselves to have, the more accountability and thus ownership they will have over a project. Conversely, when an individual does not believe they have control over adversity it is likely that they will allow it to reach into other areas of their lives, which in turn will magnify the problems faced, reducing their working performance.

5.2 Implications for Millennial Behaviour and Expectations in Project Assignments

Over recent years there has been a greater focus on collaboration within education. Consequently, millennials have become used to working alongside their peers in regular group-based learning scenarios. This has led to millennials developing a strong preference towards team work, due to the belief that it makes work more enjoyable. According to Howe and Strauss (2007) millennials, more than any other generation, tend to socialise in groups. With education being focused in such a way, and millennials being shown to favour group interaction, it is no surprise that millennials are seeking positions which require extensive team work.
When working as part of a team millennials expect a high level of governance, in terms of team direction and decision making. This is due to the risk of making independent decisions being removed (Alsop, 2008). Millennials are results driven, and want to receive regular feedback from co-workers and managers for their performances. This highlights their desire for constant communication and recognition from working as part of a team. A further expectation of millennials working as part of a team is that they are presented with regular learning and development opportunities, as well as a strong work and life balance (Myers and Sadaghiani, 2010).

Millennials’ unique behaviours and characteristics can contribute to project teams of today. For instance, with millennials being brought up alongside major technological advancements of the twenty-first century, they have developed a natural tendency to understand and use technology on a daily basis. In terms of the current performance of projects, this is likely to aid in their monitoring and performance, due to the continual updating and introduction of new project related software which millennials should be able to grasp with relative ease over time. Moreover, the technological mind-set which they have developed means that they are likely to introduce the latest methods of communication into project teams with the ever growing use of the intranet. By doing so, changes during a project’s lifecycle will be communicated more easily between project members, which will ultimately help to reduce scope creep occurring in the long term. Older generations may become increasingly uncomfortable with millennials wanting to implement technology, which may result in conflict. Conflict can be avoided by managers using millennials as a method for increasing older workers’ understanding of communication information technology. By doing so, organisations will also be able to reduce the extent to which they hire specialists to implement and educate users on new technology.

As millennials are accustomed to working as part of a team, they have already developed a grounded understanding of the dynamics of teamwork. Millennials may therefore help to foster internal cooperation among project team employees, as well as increase overall visibility. This would help to reduce the commonly cited problem of a lack of communication within project teams, by ensuring everyone is informed of key updates in the progress of projects (Kerzner, 2009). As mentioned, millennials possess a results driven attitude and strive towards a strong work and life balance.
Considering these characteristics in addition to their familiarity with team work, millennials’ suitability for the growing project management philosophy of ‘Agile’ becomes apparent. Agile represents a relatively new way of approaching a project and since its original introduction for the IT industry, has become increasingly popular across a wide spectrum of sectors. At the heart of Agile is the drive to produce and deliver work in sprints over a short time frame (Davis, 2013). These sprints are then repeated until the deliverable satisfies the client in question. With Agile working in iterations, the importance of team work is underlined. Millennials will therefore see results much faster than with alternative methodologies, and will form close relationships with project team members and stakeholders. In terms of millennials’ drive to attain a strong work life balance, millennials can achieve greater flexibility by closely monitoring burn down rates.

5.3 Recommendations to Develop Millennials’ Resilience

With millennials being shown to possess moderate levels of resilience the question that arises is how they are going to strengthen their AQ® further so that they possess a high AQ®. It was proposed earlier that exposing millennials to adversity in controlled simulated environments would help to develop their resilience. Due to millennials’ assumed optimism from moderate levels of resilience, and very little experience of adverse situations, this still remains a valid method. After all, it would ensure millennials gain the active experimentation of which they have been deprived. Furthermore, it is likely to be seen as increasingly attractive from an organisational viewpoint, due to very few risk implications with no potential to harm an organisation. Nevertheless, it still has financial requirements for the organisation in question. With regard to the bigger picture, these costs are small when compared to the detrimental impact millennials could have on a ‘live’ project. As a method this will not only help develop an individual’s AQ®, it will also ensure organisations select millennials who have proven that they can handle project related adversity.

Millennials who are successful within the simulations and subsequently are selected to be part of a project team can develop their AQ® further by senior project professionals assigning them a form of responsibility from the outset. This does not
mean that project based organisations should give millennials major responsibility from the beginning, rather it outlines that millennials ought to be given a specific deliverable, which is central to a project but not critical. By doing so, much of the risk is removed from a project’s perspective of time, cost and quality. Undertaking this approach gives millennials a level of autonomy over how they work. Pink (2009) outlines autonomy as one of the main drivers of motivation. Being empowered is likely to lead to millennials performing to a higher standard as well as experiencing greater satisfaction (Pink, 2009). In turn, this will make them more likely to appropriately handle the adversities that stand in their way. The idea of giving millennials responsibility will strengthen their Control scores, as to successfully deliver the assigned deliverable they will have to exercise a high degree of control. As millennials improve, senior project professionals can start to give them increasingly more deliverables in more constrained project conditions.

Further suggestions would be to allocate millennials a project professional as a mentor. Due to the nature of programmes and projects there will be little time to meet on a regular basis. However, project professionals could schedule semi-annual meetings to discuss their progress and how they can improve further. By being allocated a mentor, millennials will perceive that they have high levels of support. As shown earlier, high levels of support can lead to individuals appraising adverse situations differently, due to an individual believing that they have a wider range of resources which they can use to overcome threats that are faced. Within each meeting, the mentor and the millennial could set goals to be achieved. If achieved millennials could receive incentives in the form of more responsibility and salary increases. Semi-annual goals could be formulated around the latest APM competence framework, which identifies the competences required to be successful within project, programme and portfolio management. By using the APM framework an organisation will ultimately increase the speed of which millennials’ competence develops within project teams. This is particularly useful to organisations as project management looks set to move towards the need for chartered status (APM, 2016). Millennials’ motivation to improve will lead to higher levels of Control and Ownership which in turn will aid in the development of their resilience.
Mentoring will also help to tackle the problem of millennials being shown to move jobs frequently by encouraging loyalty. For instance, in comparison to coaching, mentoring takes a more in-depth and longer term view of improving an individual’s capability. Additional benefits which mentoring will bring include millennials becoming familiar with the project management environment more quickly. Lastly, despite the initial cost of implementing a mentoring scheme, the costs of re-recruiting will be reduced significantly.

A final proposal would be to expose millennials to different critical stages of the life cycle of major projects. Millennials could work on a rotation scheme; in which they gain exposure to a wide range of projects in critical stages. After time, they will have been exposed to varying types of project adversity. Physiologically, a fight-or-flight response will be induced from the outset, due to the challenging circumstances in which each project is being delivered. This will enable them to learn additional methods in which they will be able to cope with stress, whilst providing them with familiarity with what might happen on future projects. All of the suggestions are based on Bandura’s (1971) social learning theory which outlines that individuals learn best by direct experience.

Questions arise over the AQP® as a measure of resilience. For example, stress is seen to be a key factor in an individual’s response to adversity. With the AQP® failing to induce any anxiety or stress, how can it be classified as a valid measure of resilience. Arguably the best way to test someone’s resilience is through actual exposure to adverse situations. This is especially true when you consider millennials’ perception of their ability is likely to be higher as a result of helicopter parenting, and that resilience as a process is dependent on how an individual interacts with the environment. The measurement of AQ® across the dimensions of CORE is superficial as there is no proof of whether or not an individual would respond in that particular way.

Furthermore, as outlined earlier, the term adversity is a multidimensional concept. Millennials may have moderate levels of resilience with regard to dealing with adversity on a personal level as opposed to in the working environment. After all, at the age of 23 many of them will have only just left education, and at the most would have only been exposed to 1 or 2 years of working experience. The fact that millennials are
widely believed to be narcissistic suggests that personal adversity may be easier to deal with due to their major interest in themselves. The results of the AQP® do not differentiate between the level and extent of the adversities an individual is facing.
Chapter 6 Conclusion

To provide an appropriate conclusion, each research objective will be addressed separately. By doing so, the reader will be guided through on how the methods and results have led the author to present each conclusion. The final part will examine the limitations and overall implications for future work within this area.

6.1 Research Objectives

1. To explore Stoltz’s AQ® theory and its correlates.

Stoltz’s AQ® theory has been explored and applied to various concepts throughout. With results showing millennials to possess moderate levels of resilience, their responses to adversity have been assumed to be positive due to their lack of experience of failure. This assumption has led to the author applying Seligman’s (2011) theory of learned optimism to millennials, which helps to highlight that millennials’ responses to adversity are likely to continue to improve over time. Furthermore, moderate scores were thought to signify that millennials possess a strong self-efficacy, thus belief in their ability to successfully overcome adversity that arises. Lazarus and Folkman’s (1984) theory of cognitive appraisal was used as a possible explanation for why millennials were found to have moderate levels of resilience. The possibility was based on their perceived exposure to helicopter parenting disrupting the way in which they appraise stressful events.

With females possessing higher scores across all of the dimensions of CORE apart from Endurance it was concluded that their behavioural instincts of tend-and-befriend as shown by Taylor et al. (2000) may have meant that, whilst answering the AQP®, they cared about their responses across a wider spectrum of events in comparison to males. Further correlates which were discussed include Kolb’s (1984) experiential learning cycle and Seligman’s concept of learned helplessness. Millennials exposure to helicopter parenting was thought to have reduced the extent to which millennials have been able to reflect and conceptualise on how best to deal with adversity. With
Reach being found to be the lowest scoring dimension, millennials were highlighted to be particularly vulnerable to experiencing learned helplessness.

In terms of the AQ® as a measure of resilience, it is argued that it supports the conceptualisation of resilience as a process. The backbone of this argument is that resilience as a process is concerned with how an individual interacts with the environment, in terms of the processes that are used to reduce the level of risk faced. This reflects much of the nature of questions included in the AQ®, and supports Stoltz’s (1997) notion that AQ® can be improved over time.

2, To explore the relationship between the CORE of AQ® and work performance.

With results showing a weak significant correlation between Control and Origin and Ownership and a moderate significant correlation between Reach and Endurance a number of implications towards the working environment can be derived. For example, individuals who perceive themselves to have greater control over adversity within the working environment will ultimately show greater levels of ownership. This is likely to lead to improvements in working performance. Conversely, those who allow adversity to reach into other areas of their lives will cause it to be perceived as longer lasting. This is due to it affecting multiple areas within their lives. In turn, this will reduce their performance over time, due to their belief that adversity will be difficult to overcome.

3, To discuss the demands the project environment makes on the individual.

The demands the project environment makes on an individual has been shown throughout. Regular reference has been given to the heightened levels of stress caused by multiple projects being ran simultaneously. Additional demands which have been highlighted include the continual exposure to varying degrees of risk, complexity and uncertainty. The identification and discussion of project demands has led to the author confirming that millennials would be most suited to working within a project team where they can receive regular support as oppose to going straight into project management positions which hold greater responsibility and power. This is due to them not having the required experience of adversity to judge whether they really have moderate levels of resilience.
Additionally, in spite of the highlighted demands, the author has acknowledged ways in which millennials’ characteristics are likely to aid in delivering projects of today. For instance, with millennials being brought up with technology to a greater extent than any other previous generation, it is inevitable that as they begin to populate more of the project environment, greater use of technology will be seen. Improvements in the performance and monitoring of projects may occur as a result. This is due to the large extent to which performance monitoring and risk analysis is done using software. Furthermore, considering millennials’ familiarity and preference towards teamwork, their suitability towards working under the project management philosophy of Agile is proposed. Not only will this account for their drive to work with others closely, it will also enable millennials to fulfil their results driven attitude and preference for a strong work and life balance. Eventually, millennials can help to educate older members of project teams on the use and implementation of technology.

4. To assess how millennials measure up on the AQ® profile.

Despite the initial concerns outlined in both chapters 1 and 2, millennials were shown to possess moderate levels of resilience from completing the AQP®. This suggests that millennials can handle much of the adversity faced within their daily lives. With regard to their AQ® scores, female millennials were shown to have a slightly higher AQ® in comparison with males. These differences were shown to be statistically insignificant, which outlines that gender does not determine whether an individual has a high or low AQ®. For both males and females, Reach was shown to be the lowest scoring dimension, whereas Origin and Ownership was shown to be the highest. These findings highlight millennials’ ability to handle moderate adversity, and pose further questions of how well millennials will be able to handle significant adversity over a prolonged period of time. Through further analysis, scores across the dimensions of CORE were shown not to vary dependent on gender. This finding in particular provided support for the null hypothesis (see chapter 3). The most significant finding outside of millennials being shown to possess moderate resilience was found from using Pearson’s r. Pearson’s r showed a weak significant correlation between the dimensions of Control and Origin and Ownership, and a moderate significant correlation between the dimensions of Reach and Endurance. Support for these
findings was found from both Grandy (2009) and Stoltz (1997). The weak and moderately significant correlations confirm the importance of millennials improving their control over adversity, and further suggests that millennials are particularly vulnerable when faced with significant adversity. Millennials are therefore more suited to working as part of project team, where they will receive a greater level of support through adversities that arise, thus reducing the likelihood of adversity reaching into other areas of their lives, and being perceived as long lasting.

5. To propose methods to continuously develop CORE in millennials for them to contribute optimally to project teams.

A number of progressive methods were put forward for millennials to develop their CORE so that over time they could develop a high AQ®. All methods were based from a project organisations perspective.

The first method proposed was to expose millennials to adversity in simulated environments. As stated, millennials lack experience of dealing with adversity. From experiencing adversity in simulated environments millennials will be able to gain the active experimentation of which they have been deprived, thus helping them to develop their Control and Origin and Ownership scores further. As a method for recruiting millennials into the project environment, an organisation is presented with minimal risk implications with regard to the performance of projects. Moreover, any cognitive bias over their performances can be identified, which in turn means project professionals can ensure they are recruiting the most resilient millennials.

Millennials who perform to the required standard, and subsequently progress into the project management environment can then complete a structured internal programme to develop their CORE further. From the beginning millennials will be given responsibility in the form of a specific deliverable. Support for giving employees autonomy is found from Pink (2009) who outlines the enhancement of performance and satisfaction as a result. Ultimately from millennials being given a deliverable, they will be forced to exercise a higher degree of control and ownership.
To compliment this new-found responsibility for millennials, they could also be allocated a senior project professional as a mentor, whereby semi-annual goals are set in accordance with the latest APM competence framework. As outlined in chapter 2, an individual’s perception of perceived and actual support can influence the extent to which an individual can cope. The final suggestion was for millennials to be exposed to multiple projects within critical stages of their lifecycle. To achieve this an organisation could place millennials on a rotation scheme. By doing so, millennials will learn further ways in which they can cope with stress, whilst gaining experience of projects being delivered in the most challenging of circumstances.

6.2 Contribution to Existing Research

Despite the growing interest and acknowledgement that millennials will populate the majority of the workforce within the near future, there are very few academic papers which focus solely on the millennial generation, let alone in the context of project management. Further interest may therefore be sparked in examining millennials within project management following the completion of this research paper.

With results revealing millennials to possess moderate levels of resilience the negative stigma to which much of the popular press give millennials may be removed. Consequently, project recruitment specialists may seek to employ more varied recruitment methods specifically tailored at recruiting the most resilient millennials.

6.3 Limitations and Future Research

Peak Learning restriction of the AQP® to 100 participants formed one of the main limitations of this research paper. This is due to it reducing the likelihood of significant differences being observed. Moreover, despite the focus on the millennial generation the majority of participants who answered the AQP® were under 25, so many of the results obtained ignore older millennials.

Future research examining millennials should therefore utilise a larger participant sample as well as ensuring that results are gathered from the entire age range of millennials. Researchers may also consider investigating male and female millennials.
separately. A final improvement would be for future research to undertake a combination of qualitative and quantitative methods. Not only would this increase the validation of results, it would also enable researchers to gain a broader perspective of the millennial generation. For instance, despite the validity of the AQP®, it does not place participants under any real environmental demands. Therefore, by examining millennials qualitatively researchers will be able to determine the extent to which they use cognitive bias to describe their ability to overcome adversity within the AQP®. One method of doing this would be to administer the AQP® to millennials, followed by observing them handling adversity in simulated environments. Researchers may also consider examining millennials over a longer period of time within the work place, this will reveal a wider range of adversity, which will help determine their real response capability. As discussed, adversity is a multidimensional concept. Observing them over a longer period of time will increase the likelihood of exposure to varying degrees of adversity.
February 7, 2016

AQ Profile® Official Research Agreement

By signing this document, I agree to

1. Use the AQ Profile® for only the research project I have proposed to, and which has been approved by Dr. Paul Stoltz, CEO of PEAK Learning, Inc.
2. Not use the AQ Profile® for any monetary gain
3. Not to duplicate the AQ Profile® for any purpose except for the approved research
4. Not to allow anyone else to duplicate the AQ Profile®
5. Return or destroy the original AQ Profile® to PEAK Learning, Inc. once my research is complete
6. Share all AQ® data and a copy of my study with PEAK Learning, Inc.
7. Have my name and paper posted on the Global Resilience Institute/PEAK Learning webpage
8. Not to include the AQ Profile® in research paper or appendix
9. Use the symbol ® whenever I mention AQ®, Adversity Quotient®, and AQ Profile® in any written form
10. Protect PEAK Learning’s intellectual property to the best of my ability

Lloyd Harriman 08/03/2016

Date

Please sign and fax back to the attention of Katie Martin, 805-595-7771, OR scan and email the pdf to katie@peaklearning.com.
Appendix B – Ethical Approval Confirmation

Dear Mr. Harriman,

I am pleased to confirm that the Ethical Approval Form (number: 156804) for your project entitled "Project Title" has been approved by the Ethical Review Board. The approval is effective from [Approval Date] and remains valid for [Approval Duration].

Please ensure that all necessary ethical considerations are met and that all participants are fully informed and consented.

Thank you for submitting your project's Ethical Approval Form to the Ethical Review Board. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

[Your Name]

[Your Position]

[Institution Name]
## Appendix C – SPSS Outputs

### Group Statistics

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### Independent Samples Test

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T-test examining the difference between overall AQ® and males and females
Descriptive Statistics

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**. Correlation is significant at the 0.01 level (2-tailed).

Pearson’s correlation examining the relationships between the dimensions of CORE

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Pearson’s correlation between age and AQ®
Chapter 8 References


References


References


References


