

Assessing Psychological Capacity for Risk Taking and Risk Management –

The Risk Personality Questionnaire & the Group Risk Personality Questionnaire

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Society of Actuaries in Ireland

The Society of Actuaries in Ireland is committed to advancing actuarial knowledge, in order to enhance the contribution that actuaries can make in traditional actuarial fields and in wider fields where actuarial thinking and techniques can add value.

Activities in this regard include developing our own research, working on research topics in collaboration with other bodies and providing funding for independent research that is relevant to actuaries, policymakers and the wider public.

In 2013, the Society funded Colm Fitzgerald, a Fellow member, to undertake independent research in the area of Risk Intelligence. Risk intelligence or risk personality testing aims to improve the management of risk and the risk efficiency in an organisation by:

- Assessing and highlighting psychological, emotional and irrational biases of risk takers to improve their self-awareness, e.g. in relation to over-confidence and other more complex biases;
- Based on the findings, teaching risk takers to avoid and overcome these psychological traps in their risk management activities.

The subject has much relevance for actuaries and others, both generally and directly in the fields of risk management and investment.

The views expressed in this paper are those of the researcher and not necessarily those of the Society of Actuaries in Ireland. Any errors/omissions are the responsibility of the researcher alone.

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Executive Summary

Overview

This paper outlines the theoretical framework, construction and operation of a Risk Personality Questionnaire (RPQ) and a Group Risk Personality Questionnaire (Group RPQ).

The purpose of the RPQ is to quantitatively measure an individual's psychological capacity for risk taking and risk management. The purpose of the Group RPQ is to quantitatively measure the degree to which the psychological capacity of a group of individuals is greater or less than the sum of the individual members' psychological capacities. Another purpose of the questionnaires is to highlight improvement opportunities from the responses given to aid enhancing the individual's and/or the group's psychological capacity for risk taking and risk management.

The questionnaires have a number of potential uses. The RPQ could be used as part of an assessment process when hiring an investment manager or a risk manager. It could also be used as part of a performance enhancement programme for existing investment or risk managers. The Group RPQ could be used to assess the psychological functioning of a board of directors or a risk committee and to facilitate enhancing the psychological functioning of a board of directors or a risk committee.

Theoretical Framework

The theoretical framework for the questionnaires is based on classical thought. It assumes that all individuals are subject to the same human condition. This human condition is considered to subject individuals to a variety of constraints which limit their psychological capacities. The degree to which an individual is reaching their psychological potential - their maximum psychological capacity – is considered to depend on the degree to which the individual's mind is operating in an optimum manner and the degree of vitality in the individual's mind.

An individual's mind is considered to be operating in an optimum manner when the individual has a particular form of humility in their ego - one that arises from a combination of confidence, optimism, courage and patience in their own thought, balanced by a combination of self-criticism and pessimism in their logical and rational thinking. When an individual's mind is operating in such a manner, the degree to which the individual is reaching their psychological potential is then considered to depend on the degree of vitality in the individual's mind.

To provide support for the theoretical framework for the questionnaires, comparisons are drawn showing consistency with the thought of a number of eminent psychologists and classical authors – Maslow, Freud, Sophocles, Jung, Fromm, Nietzsche, Heidegger, Keats, Adam Smith, Machiavelli and Socrates. Comparisons are also made with existing methods of psychological assessment of individuals' capacities for risk taking and risk management. These suggest that the RPQ offers additional explanatory power and improvement opportunities over, for example, the methodologies in the field of behavioural finance. For completeness, the theoretical framework for the RPQ is mapped onto the heuristics and biases framework of the field of behavioural finance. A comparison is also made with the Myers Briggs Type Indicator assessment.

Construction

Different psychological viewpoints are considered to be related to the degree to which an individual's mind is operating in the optimum manner outlined above. A subset of these viewpoints was chosen based on their potential for differentiating individuals. Questions in the RPQ and Group RPQ were then designed to assess the varying degrees to which individuals have these viewpoints. The answers to the questions were designed to appeal to ego defence mechanisms that are likely to be associated with the varying degrees to which an individual holds a certain viewpoint. This indirect assessment method was used, along with other techniques, to avoid 'gaming' of the questionnaires – in other words to stop individuals giving answers that they think that they should give rather than more honest answers. Individuals are usually unaware of their ego defence mechanisms and if they invalidate them, they are likely to experience ego injury – making it difficult to 'game' the questionnaires.

Operation

The RPQ calculates an individual's *Potentiality-Coefficient* along with other coefficients which quantitatively measure the degree to which an individual is reaching their psychological potential. The RPQ also enables feedback to be given to an individual to highlight how they might improve the extent to which they are reaching their psychological potential.

The Group RPQ calculates and compares a group's '*Group-Potentiality-Coefficient*' with the sum of each individual member's '*Individual-Potentiality-Coefficient*'. The Group RPQ enables feedback highlighting opportunities to improve the combined psychological functioning of the group.

Testing

The RPQ was tested with the help of a group of volunteers who trialled the RPQ. The sample results were statistically analysed in the form of a proof of concept analysis to assess the reliability and validity of the RPQ. Reliability was tested by using the ‘split-half’ method. Validity, whether the questionnaire actually measures what it is supposed to measure, was tested by assessing the correlation between calculated *Potentiality-Coefficients* and an independent measure of how prone the volunteer was to a set of heuristics and biases from the field of behavioural finance.

The testing results show moderate to strong indications of validity and reliability. This indicates that the RPQ can be a viable method to assess an individual’s psychological capacity for risk taking and risk management.

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1 Introduction & Background

The research indirectly began over a decade ago when the focus was to develop an understanding as to how theories and methodologies in the field of general psychology could be applied to increase investment profits and to better manage investment losses. In 2010, following work with Dylan Evans, who had developed the first ‘risk intelligence’ test, the focus of the research broadened to include the general influence of psychology on risk taking and risk management.

Considering it to be an opportunity for actuaries to broaden their enterprise risk management skills into the psychological side of risk management, I approached the Society of Actuaries in Ireland about funding research to produce an evolved version of a ‘risk intelligence’ test.

The initial part of the research involved producing a theoretical framework. This involved considerable background research to investigate the psychological factors that might influence an individual’s psychological capacity for risk taking and risk management. None of these turned out to be innate. Instead, all these factors were linked to the extent to which an individual was operating at, what is referred to in this research, as their *psychological potential*¹. The theoretical framework that was constructed explains, in considerable depth, why a certain optimum operating manner in an individual’s mind can enable them to reach their *psychological potential* – maximising their psychological capacity for risk taking and risk management. It also explains how this optimum operating manner might be assessed.

The remainder of the research involved constructing the Risk Personality Questionnaire (RPQ) which was designed to quantitatively measure the extent to which an individual has reached their *psychological potential*. The RPQ was complemented by the construction of a Group Risk Personality Questionnaire (Group RPQ) which was designed to assess the extent to which a group has reached its combined *psychological potential*.

1.1 Brief Overview of the Research

The research to produce the RPQ involved the following steps:

- A literature review of related research and a study of general psychology, psychometric testing, personality testing, and classical literature.
- Developing a theoretical framework.
- Designing and constructing the RPQ and the Group RPQ.
- Conducting focus groups.
- Testing the draft RPQ with the help of volunteers.
- Statistically analysing the results to investigate reliability and validity.
- Producing the final versions of the RPQ and Group RPQ.
- Drafting this research paper.

¹ An implicit assumption was made that everybody is subject to the same ‘*human condition*’ and therefore, theoretically, they could be considered to have the same ‘*psychological potential*’. This is discussed further in section 3.2 and 3.3.

The structure of this paper is as follows:

Section 2 outlines a literature review of related research.

Section 3 outlines the theoretical framework.

Section 4 outlines the RPQ - its construction, operation, and output.

Section 5 outlines the Group RPQ - its construction, operation, and output.

Section 6 covers the statistical testing.

Section 7 makes suggestions for further research.

The research has also produced instruction manuals for the RPQ and the Group RPQ, which are the property of the Society of Actuaries in Ireland. These are not included in this document. The instruction manuals set out each question in both the RPQ and the Group RPQ. They explain what each question is testing and how different answers contribute to the output from the questionnaires. The manuals also include additional statistical data from testing the questions. And finally, they show how feedback can be given to those who complete the questionnaire(s). Relevant examples and elements from the instruction manuals are included in this paper.

2.0 Literature Review

Existing research investigating the psychological aspects of risk taking and risk management is briefly outlined under three different headings below. Under each heading, there is a brief summary of the existing research, followed by critical observations and brief comments as to how the RPQ research relates to each area.

Risk Intelligence

David Apgar coined the term *risk intelligence* in his book of the same name in 2006². He defines it as the capacity to learn about risk from experience. Another book called “*Risk Intelligence*” was published in 2012 by Dylan Evans³. Evans defines risk intelligence as a special kind of intelligence for thinking about risk and uncertainty at the core of which is the ability to estimate probabilities accurately. Evans interviewed successful risk takers for his book and based his theory on his study on these individuals. He produced the first ‘risk intelligence test’ in 2009. In 2010, Frederick Funston & Stephen Wagner redefined risk intelligence as the ability to distinguish between two types of risks: the risks that must be avoided to prevent loss or harm; and the risks that must be taken to thrive by gaining competitive advantage⁴. The definition of risk intelligence was again redefined by Leo Tilman in 2013 as “*the organizational ability to think holistically about risk and uncertainty, speak a common language, and effectively use forward-looking tools in making better decisions.*”⁵

Apgar, Funston & Wagner and Tilman have attempted to shift the focus of risk management away from one which is mostly technically focused to one that also includes more learning from experience, reflection, and unconventional and holistic thinking. They’ve each called their approaches risk intelligence. However, it is not widely accepted that any of them are defining a new type of innate intelligence. Each of them might be considered to have significantly further to go in order to achieve this.

Dylan Evans has pioneered the testing of psychological attributes that might contribute to an individual’s ‘risk intelligence’. His research could be considered imaginative and groundbreaking. Evans’ test assesses the degree to which an individual is over-confident or under-confident, which is an important psychological aspect in risk taking and risk management.

An aim of the RPQ research was to carry out a deeper investigation into the psychology behind taking and managing risk, and to produce an improved methodology to assess this.

² Apgar – Risk Intelligence – Harvard Business School Press (2006)

³ Evans – Risk Intelligence – Free Press (2012)

⁴ Funston & Wagner - Surviving and Thriving in Uncertainty: Creating the Risk Intelligent Enterprise – Wiley (2010)

⁵ Tilman - Risk Intelligence – The European Financial Review – December 2013
<http://www.europeanfinancialreview.com/?p=591>

Behavioural Finance

The field of behavioural finance looks at why economic agents do not conform to the rationality assumption typically assumed in the theory of economics and finance. The field covers a smorgasbord of cognitive anomalies that arise from heuristics and biases. These were formulated into what is known as Prospect Theory in 1979 by Daniel Kahneman and Amos Tversky.

Behavioural finance attributes the cognitive anomalies in rationality to heuristics and biases. It does not explain how and why the heuristics and biases arise – it just highlights the existence of the heuristics and biases. Some attempts have been made to measure the degree to which different individuals might be prone to these heuristics and biases, e.g. the Cognitive Reflection Test of Shane Frederick⁶.

An aim of the RPQ research was to investigate how and why the heuristics and biases come about in order to provide a deeper explanation of psychological differences between individuals and groups. It also aimed to evolve the quantitative assessment of individuals as to how prone they are to these heuristics and biases.⁷

Assessments Techniques and the Merits of Different Psychology Traits

Numerous research papers and investigations have highlighted the lack of adequate assessment techniques to differentiate individuals on psychological grounds according to the likelihood that they will perform better at risk taking and risk management. For example, research by Stephen Ceci & Jeffery Liker⁸ has found that IQ is unrelated to skilled performance when gambling and that IQ is unrelated to real-world forms of cognitive complexity that would appear to conform to some of those that scientists regard as the hallmarks of intelligent behaviour. As another example, Philip Tetlock conducted a twenty-year study in which 284 ‘experts’ in many fields were asked to make predictions about the future⁹. He found that the experts were only slightly more accurate than chance and worse than crude extrapolations. Forecasters with the biggest news media profiles performed especially poorly.

⁶ http://psych.fullerton.edu/MBIRNbAUM/PSYCH466/articles/Frederick_CRT_2005.pdf

⁷ A mapping of the biases and heuristics in behavioural finance onto the theoretical framework of the RPQ is outlined in section 3.6.1

⁸ “A day at the races: A study of IQ, expertise, and cognitive complexity” - Journal of Experimental Psychology, Sept 1986 <http://psycnet.apa.org/index.cfm?fa=buy.optionToBuy&id=1986-29074-001>

⁹ Described in his book, “*Expert Political Judgment: How Good Is It? How Can We Know?*” - Princeton University Press (2006)

Furthermore there have been many studies and books written on the merits, or otherwise, of various psychological traits. There is often research advocating the merits of a certain trait and other research advocating the opposite, e.g. “*The Power of Positive Thinking*” by Norman Vincent Peale (1990) and “*The Power of Negative Thinking*” by Bob Knight and Bob Hammel (2013). As another example, the merits of having confidence are commonly advocated. But a recently published book by Tomas Chamorro-Premuzic has advocated the merits of having low levels of confidence¹⁰.

An aim of the RPQ research was to theoretically link various psychological traits to the extent to which an individual has reached their *psychological potential* – the extent to which the individual is maximising their psychological capacity for risk taking and risk management¹¹. The aim was to do this by consider the interrelated nature of psychological traits and to provide a holistic theoretical framework to enable assessment of the merits or otherwise of various psychological traits. An indirect aim was to also resolve existing contradictions.¹²

¹⁰ Chamorro-Premuzic – “*Confidence*” – Profile Books (2007)

¹¹ This is discussed further in section 3.6.3

¹² This is discussed further in section 3.6.4

3.0 Theoretical Framework

3.1 Overview of Background Research

The background research covered the following areas:

- Specific research related to psychological aspects of risk taking and risk management (as outlined in section 2),
- General psychology,
- Classical literature, and
- Psychometric and personality testing.

For example, in the field of general psychology the following authors / books were investigated:

Freud *'The Psychopathology of Everyday Life', 'The Unconscious', 'The Interpretation of Dreams' and 'the Penguin Freud Reader'.*

Jung *'A Very Short Introduction'¹³, 'The Essential Jung - Selected writings'¹⁴, 'The Four Archetypes' and 'The Science of Mythology' (with C. Kerenyi)*

Maslow *'Motivation and Personality'*

Fromm *'The Heart of Man', 'Escape from Freedom' and 'The Anatomy of Human Destructiveness'.*

Peck *'The Road Less Travelled' and 'The People of the Lie'*

On its own, investigating the field of general psychology was not directly fruitful in providing an adequate basis for assessing the influence of psychology on risk taking and risk management. However, a common theme and basis arose. To various degrees, the above material either drew most of its ideas from classical thought or was significantly influenced by it. For example: Freud's main ideas come from Greek thought, e.g. his Oedipus complex from Sophocles and his concept of narcissism from the character Narcissus in Greek Mythology¹⁵; and, Jung drew heavily from Greek mythology and even wrote a book on the subject with Carl Kerenyi called the '*Science of Mythology*'.

¹³ By Anthony Steven – Oxford University Press

¹⁴ By Anthony Storr – Fontana Press

¹⁵ Freud might be argued to be significantly influenced by the Greeks. His house was also full of Greek statues (Simon Goldhill, 'Why The Classics Matter')

The initial research that involved studying the classical literature was more fruitful. Consequently, the classics were studied in depth, in particular ancient Greek literature and Greek mythology. The surviving works of the following classical authors were studied: *Aeschylus, Thucydides, Hesiod, Homer, Sophocles, Euripides, Aristophanes, Artemidorus, Democritus, Anaxagoras and Heraclitus*¹⁶. The works of *Aristotle, Plato* and other Socratic writers were also studied albeit in less depth¹⁷. And several books on Greek Mythology were studied, e.g. the Penguin Book of Classical Myths, the Penguin Dictionary of Classical Mythology and *The Greek Myths* by Robert Graves.

The study was extended to other classic writers, all of whom were influenced by Greek literature¹⁸. These included, Ibsen, Voltaire, Rousseau, Saint-Exupery, Nietzsche, Heidegger, Goethe, Cervantes, Machiavelli, Tolstoy, Dostoyevsky, Thoreau, Pope and Adam Smith^{19,20}.

And finally, the background research involved studying the following books related to psychometric testing and personality testing:

| | |
|------------------------------|--|
| <i>Anastasi & Urbina</i> | <i>'Psychological Testing'</i> |
| <i>Wiggins</i> | <i>'Paradigms of Personality Assessment'</i> |
| <i>Janda</i> | <i>'The Psychologist's Book of Self-Tests'</i> |
| <i>Myers</i> | <i>'Gifts Differing'</i> |
| <i>Baron</i> | <i>'What Type am I?'</i> |
| <i>Kroeger & Thuesen</i> | <i>'Type Talk'</i> |
| <i>Thaler & Sunstein</i> | <i>'Nudge'</i> |
| <i>Kahneman</i> | <i>'Thinking, Fast and Slow'</i> |

In summary, the theoretical framework was heavily influenced by the classics and involved a considerable period of background research. The theoretical framework is described in detail in the following sections:

¹⁶ For full list see bibliography

¹⁷ The research has a Pre-Socratic focus.

¹⁸ According to Proust, these writers read "*hardly read anything except the classics*".

¹⁹ For example Rousseau, said that he was "*unceasingly occupied with thoughts of Rome and Athens*".

²⁰ For full list see bibliography

3.2 Preliminary Concepts

Four theoretical concepts were devised in order to structure the theoretical framework for the RPQ based on the research described above. The concepts enable an explanation in section 3.3 of the *psychological potential* of an individual and the degree to which they have reached their *psychological potential*. The four concepts are: the *theory of non-optimal judgment*, the *ego*, the *human condition*, and a concept which involves a *division of the psyche into the 'E' and the 'Go'*, which together are considered to make up the psyche of the *ego*. These are outlined below:

The Theory of Non-Optimal Judgment

In order to consider the *psychological potential* of an individual, it is first necessary to consider the constraints imposed on the individual's *psychological potential*. In this section, the main constraints are outlined and are grouped together to form the *Theory of Non-Optimal Judgment*. *This theory states that although an individual might consider that he/she acts in their optimal interests, due to numerous psychological constraints, individuals act without optimal judgment and without a full understanding of their decisions*. Consequently, individuals cannot and do not act in their optimal interests – albeit the degree to which they act in their optimal interests differs among individuals according to the degree to which they are operating at their *psychological potential*.

The Theory of Non-Optimal Judgment has been devised for the purposes of this research. It is consistent with classical thought – e.g. Socrates declaration that, “*I know that I know nothing*” – on the basis of which he was considered the wisest of all the Greeks²¹. It is consistent with modern ideas in the field of psychology, e.g. Maslow said that “*my personal judgments are that no perfect human being is possible or even conceivable*”²². And it is consistent with modern ideas in the field of political science, e.g. Lippmann said that the real world is “*altogether too big, too complex, and too fleeting for direct acquaintance*”²³

²¹ By the Oracle at Delphi

²² Motivation and Personality, Third Edition, Addison, Wesley, Longman (1987)

²³ Public Opinion – Unabridged Edition - Merchant Books (2013)

According to the theory, an individual is psychologically constrained by:

- 1) Their level of physical health, energy, strength, effort and their attitude.²⁴
- 2) Their level of knowledge, understanding and wisdom.
- 3) Their past experience.
- 4) The constraints arising from the individual's association with others^{25,26}:
 - a. Social pietas – any necessity on the individual to adjust their behaviour to the society in which he/she lives and to the individuals within that society to have relationships with them, to interact with them, and to deal with any conflict with them.²⁷
 - b. Filial Pietas – any necessity on the individual to adjust their behaviour to manage relationships with their family, parents and ancestors.
 - c. General pietas – a necessity to show piety to gods (if taking a classical perspective).
- 5) And finally, the constraints arising from the '*human condition*'.

The above constraints can be functional or dysfunctional, progressive or regressive depending on the individual and their circumstances²⁸ – and they can also change over time²⁹. However, given the multiple nature of the above constraints it is unlikely that a 'perfect human being' is possible or even conceivable³⁰.

²⁴ Herophilos says that "*when health is absent, wisdom cannot reveal itself, art cannot manifest, strength cannot fight, wealth becomes useless, and intelligence cannot be applied*".

²⁵ According to Erich Fromm a person needs "*to be related to the world outside oneself, the need to avoid aloneness. To feel completely alone and isolated leads to mental disintegration just as physical starvation leads to death*" (Escape from Freedom)

²⁶ According to Adam Smith, "*nature, when she formed man, endowed him with an original desire to please, and an original aversion to offend his brethren. She taught him to feel pleasure in their favourable, and pain in the unfavourable regard*". Also related is Adam Smith's concept of 'fellow feeling' which he describes by saying "*how selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it.... For this sentiment like all the other original passions of human nature, is by no means confined to the virtuous and humane, though they perhaps may feel it with the most exquisite sensibility*". (Theory of Moral Sentiments)

²⁷ Dostoyevsky shows an extreme example of not adjusting to society in his novel "*The Idiot*" which is about a truly 'good' individual who does not adapt to society, and as a consequence is destroyed by it. Jiddu Krishnamurti expresses the opposite extreme of social adjustment in his comment that "*it is no measure of health to be well adjusted to a sick society*." The optimal proportionate social adjustment might be considered to be Maslow's description of his self-actualised subject, whom he regards as "*detached, withholding from complete cultural identification*".

²⁸ For example, they can be regarded as dysfunctional or regressive when a functional and progressive individual has to adjust to a dysfunction or regressive environment for reasons of social pietas.

²⁹ Jung's process of '*individuation*' and Maslow's process of '*self-actualisation*' could be regarded as processes which make an individual's constraints more functional and more progressive over time.

³⁰ Taking a classical perspective, even Pericles, the famous Athenian leader, probably the most highly regarded of the ancient Athenians, and who was even nicknamed the '*Olympian*', did not have perfect judgment.

Pseudodoxia, which means distorted logic, is considered to arise when an individual considers that he/she understands something when in fact he/she does not have a sufficiently full understanding. Because of the constraints mentioned above, a perfect understanding will never be possible. Consequently, a proportionate degree of humility is always necessary³¹.

Many of the constraints set out above are typically measured elsewhere – e.g. health assessments, in IQ tests, academic examinations, job interviews etc. This research looked mainly at measuring the constraints arising from the *human condition* and to a lesser extent constraints arising from *social pietas*, as these are not typically measured elsewhere³².

The second of the four preliminary concepts, the *ego*, is outlined in the next section. This is a fundamental element of the third concept, the *human condition*, which is outlined in the following section.

The Ego

The word ‘*ego*’ is derived from the Greek and Roman word for ‘*I*’. It is ‘*the self*’ – especially as distinct from the world and from other selves³³. The ego is considered to primarily aim to maintain or enhance ‘*the self*’ and/or its ‘*self-regard*’ – as distinct from maintaining or enhancing anything else – albeit it can also have other indirect aims.

The ego can achieve its primary aim in a ‘healthy’ manner – for example by soundly and progressively attaining any needs and wants of the individual. However, an individual typically encounters difficulties and setbacks, things that the ego does not want to think about or deal with, and also faces the constraints mentioned above – all of which limit the attaining of their needs and wants. These difficulties, setbacks and limitations can upset or injure an individual’s self or their self-regard³⁴. When this happens, the individual can choose to protect their self from any destabilising impact from the difficulties or setbacks to maintain a degree of their self-regard by the (costly) use of *ego defence mechanisms*. These ego defence mechanisms allow the individual to distort their view of reality or they allow the individual an opportunity to view an alternative reality. Alternatively, the individual can maintain their sense of reality but also experience some degree of ego upset or injury.³⁵

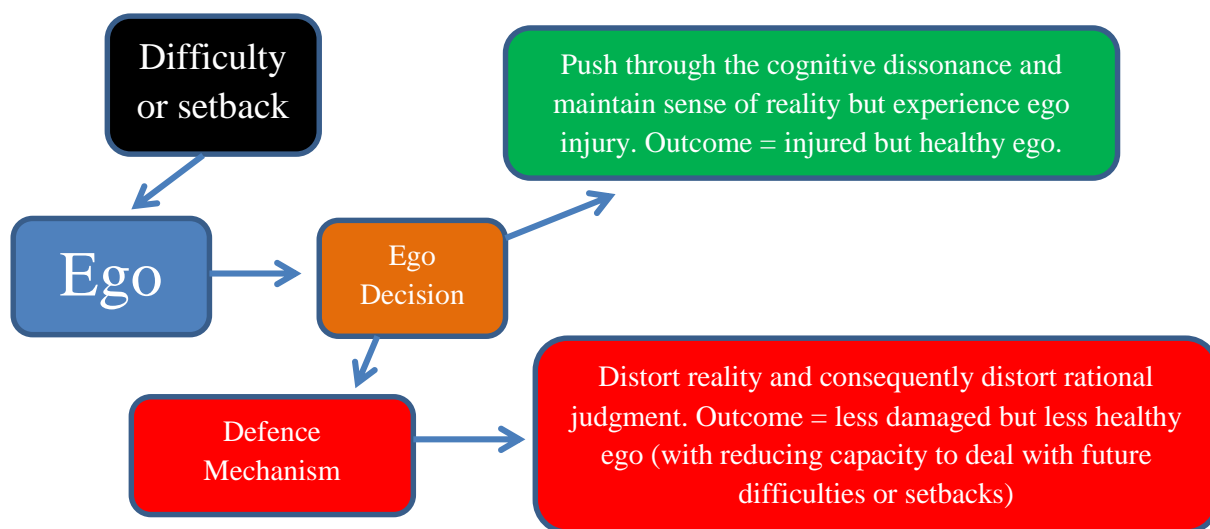
³¹ The key point here is that “*certainty is absurd*” (Voltaire) and it is likely to mean that an individual is not operating at their *psychological potential*.

³² The constraints from filial pietas and general pietas are not covered in this research as they were subjects deemed too politically incorrect to include, albeit they could be considered in further research.

³³ It is not referring to an exaggerated sense of self-importance; conceit, nor an appropriate pride in oneself; or self-esteem.

³⁴ More precisely, the injury to the ‘self’ might be regarded to be from any ‘emotional shock’ that might result from an event which might then destabilise the individual’s ‘self’

³⁵ <http://psychology.about.com/od/theoriesofpersonality/ss/defensemech.htm>.



As an example, suppose an individual studied very hard for an actuarial exam, but he/she did not pass. The individual can employ various ego defence mechanisms to protect their ego from any upset or injury from the setback, e.g. by using the mechanism of denial, by thinking that he/she understands the subject very well and that some mistake must have been made; or by using the mechanism of projection, by thinking that they have a degree of understanding of the subject, and that there must be some issue with the examining body; or similarly by thinking ‘it’s not fair’ that he/she got a fail grade; or worst of all, by using the mechanism of giving up, by considering that being an actuary is not for him/her and basing this on some erroneously negative attitude towards the exam or the profession³⁶. The aim of each defence mechanism is the same, to protect the individual’s self from the ego upset / injury that comes from not passing, to protect from the reality that they have room for improvement in order to pass the exam, and to protect from the reality that it is going to be an uncomfortable experience to do what is necessary in order to pass³⁷.

More generally, when difficulties or setbacks arise for an individual, cognitive dissonance is experienced - because the ego wants to maintain a degree of self-regard and reality wants to suggest otherwise. The ego defence mechanisms involve the ego distorting its own version of reality, to produce an alternative reality, in order to try to somewhat resolve the contradictory perspectives that are creating the cognitive dissonance. The ego will want to try to resolve the cognitive dissonance – but in favour of protecting the regard that the individual has for their self.

³⁶ The last mechanism is similar to Aesop’s fable of the ‘Fox and the Grapes’ where a fox spends a considerable time and effort trying to get some grapes from a vine – without success – and then walks away declaring that the grapes must be sour.

³⁷ Overcoming the alternative realities from ego defence mechanisms can often be the most difficult psychological part of repeating actuarial exams. These alternative realities hinder the individual student’s access to reality so overcoming them is often crucial in order to pass at the next sitting. This example is continued in later sections.

Although an individual may knowingly use these mechanisms, in most cases these defences work unconsciously to distort reality. While defence mechanisms can be unhealthy (e.g. denial, projection, rationalisation, escape, repression etc.) they can also be adaptive and allow normal functioning (e.g. sublimation and certain forms of humour)³⁸. Ego defence mechanisms cause the greatest problems when they are overused in order to avoid dealing with problems or dealing with reality and where they become necessary to validate previous usage. In these cases, significant use can lead to various forms of neuroses and character disorders, along with more extreme conditions³⁹.

The concept of the ego is central to the theoretical framework of the RPQ. An individual who is using ego defence mechanisms is sacrificing their sense of reality.⁴⁰

The Human Condition

The model of the ‘*human condition*’ outlined below is developed from classical thought⁴¹. Like the concept of the ego, it is central to the theoretical framework of the RPQ.

In the classical model of the human condition, an individual is considered to be subject to two different forces, a progressive force and a regressive force⁴². Life is considered to be analogous to a hill – one that gets flatter the further one moves up the hill and that gets steeper the further one goes down the hill⁴³. The progressive force aims to move the individual up the hill and the regressive force aims to move the individual down the hill. In the model, the regressive force is considered to be stronger than the progressive force, and nature is considered to be on the side of the regressive force since gravity and the incline of the hill push the individual down the hill⁴⁴.

³⁸ http://en.wikipedia.org/wiki/Defence_mechanisms for a full list

³⁹ See books by Fromm and Peck mentioned in section 3.1.

⁴⁰ Losing a sense of reality is problematic. Some might consider it to be very problematic, e.g. a common theme in the plays of Ibsen is that ‘truth’ is sacred and that whoever betrays it destroys him or herself. Others might consider certain conditions when it might not be as problematic, like Cervantes who said that “*Too much sanity may be madness and the maddest of all, to see life as it is and not as it should be.*” While others arguably had a possibly wider perspective and considered that “*there is no duty we so underestimate as the duty to be happy*” - R. L. Stevenson.

⁴¹ For example, from the thought of Hesiod - “*Badness can be caught in great abundance, easily; the road to her is level, and she lives nearby. but Good is harder, for the gods have placed in front of her much sweat; the road is steep and long and rocky at the first, but when you reach the top, she is not hard to find*”. And from the thought of Democritus - “*Those who seek good things find them with difficulty; bad things come even to those who do not seek them.*”

⁴² Classical writers described the progressive and regressive forces as the ‘civilised’ force and the ‘barbaric’ force. I’ve chosen not to use the classical terms in this paper as they are likely to have a different meaning for the reader. Different modern authors have given different names to the progressive and the regressive forces, e.g. Freud describes them as the ‘life instincts’ and the ‘death instinct’ (On Metapsychology), Fromm describes them as ‘the love of life’ and ‘the love of death’ (The Heart of Man) and Peck describes them as ‘grace’ or ‘humanity’ and the ‘force of entropy’ (The Road Less Travelled).

⁴³ The greatest Greek hero was Heracles/Hercules. In *Alcestis* by Euripides, he says “*the task you speak of fits well with my destiny (a path ever hard to tread, ever leading uphill)*”.

⁴⁴ This might be considered pessimistic by most readers, albeit realistic by some other readers. It is different from the messages contained in most modern forms of drama, where ‘good’ is considered to triumph over ‘evil’, e.g. Star Wars. The ancient Greek perspective was that ‘evil’ was stronger than ‘good’ and that nature

All ascent of the hill is difficult and ascending is not considered to be a comfortable experience⁴⁵. The benefit from ascending the hill is that it moves the individual to a flatter part of the hill - making additional ascent less difficult⁴⁶. Descending the hill is easier and more comfortable than ascending – but it makes future ascending of the hill more difficult.

In the classical model, what is given to individuals or what they get for themselves (food, provisions, money etc.) can help their bodies thrive. However, what is required by individuals of themselves is what is necessary for their hearts to thrive. What individuals require of themselves is the progressive force, and what individuals get can be a regressive force unless it helps them require more of themselves. Therefore, the degree to which individuals require something of themselves determines the extent to which they ascend the hill, albeit their bodies are aided in this action according to what they get (food, provisions, money etc.)⁴⁷. If individuals receive something but something is not required of them then they are likely to fall down the hill. This is likely to be an easy and comfortable experience, compared to ascending the hill - albeit it might also include some cognitive dissonance⁴⁸.

The more individuals require of themselves in a sound, progressive and healthy way - the greater their capacity to ascent the hill⁴⁹. In the model, the practice of courage, nobility, strong benevolent and/or a regard for justice, all of which require something extra of individuals, can make them ‘fitter’ for ascending the hill. Consequently, they improve their capacity for future ascent.

was on the side of ‘evil’ – consequently, ‘good’ had a continuous uphill battle against ‘evil’, even just to maintain its present condition. Modern dramas typically have a ‘live happily ever after’ ending. In Greek drama, the characters experience the consequences of their actions which sometimes results in happy endings, and at other times, tragic endings (despite being referred to as Greek Tragedy, some have very happy and optimism endings, e.g. the Oresteia by Aeschylus). Ibsen drama is similar to Greek drama – Ibsen is often referred to as the ‘great realist’.

⁴⁵ Classical authors considered that it was a painful process or that it involved ‘suffering’ (Aeschylus). For an individual to experience they are progressing in their life, but also to feel that they are continually going against nature, is often erroneously considered to be unfair. In this model, it is not ‘unfair’, it’s life, and bemoaning the unfairness is likely to result in pseudodoxia.

⁴⁶ The Greeks considered that although going up the hill was painful, it the route to the ‘higher joys in life’.

⁴⁷ This is different to a commonly held perspective where an individual might consider that winning the lottery would be a solution to all their problems. According to the model this is an erroneous understanding of the human condition and may be considered to be a reason why winning the lottery often makes the lives of some winners worse rather than better. What an individual requires of themselves is considered to be a key element in achieving happiness in the classical model.

⁴⁸ A simple example might be when an individual receives something but does not says “thank you” and or show gratitude. In the model, saying ‘thank you’ or being grateful is considered beneficial to the individual as it requires something of him/her. This is a possible psychological explanation as to why an individual might experience cognitive dissonance when they do not show gratitude.

⁴⁹ According to Machiavelli *“there’s no doubt that rulers achieve greatness by overcoming the obstacles and enemies they find in their path. So when destiny wants to make a ruler great, particularly a new ruler..... it sends him enemies and prompts them to attach him. That way he has the chance to climb the ladder his enemies have put in front of him.”*

As an example, suppose two individuals were hired to give a presentation on a controversial topic. In this model, presentations are considered to be more progressive the more the individuals require of themselves. Suppose the first individual wants to opt for the progressive approach. They can do so by being courageous - by trying to give an edge to their presentation. They can be strongly benevolent by trying to consider and to address some of the circumstances of members of the audience, e.g. by adding a Q&A session. And they can have a regard for justice by trying to consider any extra requirements of any disabled members of the audience. Suppose the second individual just gives a presentation based on consensus opinion and meets only the requirements in their contract. The first individual, who opts for the progressive approach, is opting for the more difficult and less comfortable approach – but this approach is more likely to move the individual ‘up the hill’. The benefit to this individual is that the experience is likely to make it less difficult to take the same progressive approach in the future. Similarly, the second individual who opted to only meet the minimum requirements for the presentation will find it more difficult to be more progressive in the future.

This idea can be aggregating. Saint-Exupery argued that “*civilisations are created from what’s required of people rather than what’s given to them*” – albeit, what’s given to people can help if it helps the people require more of themselves.

Applying the classical model to the psyche - progressive thoughts can be differentiated from regressive thoughts in that they are likely to be met by the psyche with hurdles or obstacles to overcome⁵⁰, whilst, regressive thoughts are likely to be met with no such hurdles or obstacles.

This model is complicated by the ego which can deploy its defence mechanisms to protect or maintain the individual’s self-regard. On balance, in the model the ego is a regressive force⁵¹. This is because the ego’s defence mechanisms result in a loss of a sense of reality which can result in individuals considering that less is required of themselves, and consequently requiring less of themselves - albeit the mechanisms can allow individuals to buy time to tackle the difficulty or setback and still maintain their self-regard. The frequency and severity of the ego defence mechanisms determines the degree to which they are regressive forces.

In the theoretical framework for the RPQ, the degree to which an individual is operating at their *psychological potential* is related to the degree to which an individual has ascended and is ascending the hill⁵². The further an individual has ascended the hill, the flatter it becomes, making the individual less constrained by the hill. Consequently their progressive force has greater potential further up the hill.

⁵⁰ This is analogous to the progressive thoughts of the ‘E’ being met by the hurdles arising from the critical and pessimistic thinking of the ‘Go’.

⁵¹ It provides only an illusion of progress to the individual. Overcoming one’s ego is a very common theme in Buddhism, Taoism, and most ‘self-help’ books. According to Peck “*An attempt to avoid legitimate suffering lies at the root of all emotional illness*” (The Road Less Travelled). The topic of overcoming the ego is discussed further in later sections.

⁵² It is also related to the individual’s position on the hill which depends not only on the degree of ascent, but also the starting point, which can be different for individuals due to the different constraints that they experience from their individual circumstances and relationships.

The degree of ‘health’ of an ego can also be regarded as to the extent to which it has ascended the hill. Individuals who have ascended further up the hill are considered to have healthier egos than those who have ascended to a lesser degree or those who have fallen down the hill. Falling down the hill is considered to reduce psychological capacity⁵³.

In the example above, if both individuals who give the presentations feel equally good about themselves, the first one is considered to have a healthier ego. In this case, the second individual might value their efforts or intentions – rather than the quality of their presentation⁵⁴

Having considered, the *theory of non-optimal judgment*, the *ego* and the *human condition*, the final preliminary concept necessary to structure the theoretical framework of the RPQ is outlined below.

Dividing the Psyche into the ‘E’ and the ‘Go’

In order to fully integrate the background research into the theoretical framework for the RPQ, an additional construct was developed, which involved dividing the psyche into:

- The part of the psyche that produces an individual’s own thought, their intuition/gut-feelings, and their imagination and ideas⁵⁵. It is referred to as the ‘E’

And,

- The part of the psyche that deals with logical and rational thinking – this is referred to as the ‘Go’

This division differentiates between thinking and thought. Thinking is considered to be a logical and rational mental process that acts upon the individual’s thought or upon the thinking and thought of others. Thought is considered to be something which arises on its own⁵⁶, and logic and reason can then act on it. In the theoretical framework for the RPQ, the psyche is considered to operate whereby an individual’s own thought arises from the ‘E’. The ‘Go’ logically and rationally processes the individual’s own thought, along with the thoughts and thinking of others.

⁵³ In ‘The Heart of Man’ Erich Fromm discusses extreme examples of this, and considered that in the extreme individual can have “*so completely destroyed all the possibilities for the development of a progressive orientation that they too have lost the freedom of choice – in this case, the choice to progress*”.

⁵⁴ This was the basis whereby ‘master morality’ was differentiated from ‘slave morality’ in classical thought. ‘Master morality’ is a morality based on getting things done, doing the right/best thing, and the quality of the results. ‘Slave morality’ is a morality based on effort and good intentions (which are typically ego distorted). In classical thought, an individual who was considered unable to rule themselves was considered to be a ‘slave’.

⁵⁵ It also includes the ‘unconscious’ part of the psyche

⁵⁶ It is comparable to the ‘Way’ or ‘Tao’ in Taoism - “*The Way is like an empty vessel that yet may be drawn from without ever needing to be filled.*”

The concept of the ‘E’ was developed from classical thought, in particular from the thought of Anaxagoras and Heraclitus⁵⁷ and it was named after the famous Delphic inscription ‘E’⁵⁸. The ‘Go’ is given its name, because, theoretically, the ‘E’ combines with the ‘Go’ to produce the psyche of the ego. The ‘Go’ might be considered to be a more direct and straightforward part of the psyche than the ‘E’ which might be considered to be more mysterious.

The construct of the ‘E’ and the ‘Go’ allows the extent to which an individual is operating at their *psychological potential* to be divided into two components – firstly, the extent to which the individual is using and facilitating access to the full potential of their own thought, and secondly, the extent to which the individual is using and facilitating access to the full potential of their logical and rational thinking. Fully utilizing the potential from both components is considered necessary to reach an individual’s *psychological potential*.

The absence of a modern comparable construct necessitated the development of the construct of the division of the psyche into the ‘E’ and the ‘Go’ for the RPQ research⁵⁹. The construct is related to a famous perspective of Einstein⁶⁰, the philosophy of Heraclitus and the philosophy Taoism⁶¹. The construct is also comparable to the perspective of some classical writers, e.g. Tolstoy⁶².

The construct also allows the theoretical framework of the RPQ to model the merits of various psychological traits, e.g. confidence, and to resolve the contradictions about their merits that are inherent in psychology research (see section 2).

⁵⁷ Anaxagoras, the famous advisor to Pericles during the Golden Age of Athens, considered ‘thought’ to exist independently of everything else. He considered individuals’ senses to be feeble and to be incapable of understanding the world. He considered that only ‘thought’ was powerful enough to do aid our understanding of the world. This was similar to the perspective of Heraclitus, who defined wisdom as ‘the action of the mind beyond all things that can be said’.

⁵⁸ A great deal of mystery surrounds the meaning of the inscription. It is discussed at length in Plutarch’s “*The E at Delphi*”.

⁵⁹ An example of a related concept, albeit one inadequate for this research, is the distinction made in popular psychology between the ‘ego’ and the ‘true self’, for example by Deepak Chopra.

⁶⁰ “*The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honours the servant and has forgotten the gift*” - Einstein

⁶¹ As expressed in the ‘Tao Te Ching’ by Lao Tzu and in the ‘Art of War’ by Sun Tzu. E.g. Sun Tzu says “the skilful strategist cultivates the Way and preserves the law” (Art of War). The ‘Way’, also referred to as the ‘Tao’, is comparable to the concept of the ‘E’.

⁶² “One’s writing is good only when the intelligence and the imagination are in equilibrium. As soon as one of them overbalances the other, it’s all up, you may as well throw it away and begin afresh” - Tolstoy

3.3 Psychological Potential

This section explains how the psyche is considered to behave at its *psychological potential*.

According to the theoretical framework underlying the RPQ, an individual is most likely to be operating at their *psychological potential* when the individual has:

- Humility of the *Ego* - which is made up of:
 - o Confidence, optimism, courage and patience in the ‘*E*’
 - And,
 - o A ‘*Go*’ that is critical and pessimistic to balance the confident and optimistic ‘*E*’ to maintain a proportionately humble the ego

The extent to which an individual is operating at their *psychological potential* then depends on the degree of *vitality* in the individual’s psyche. This might be anecdotally regarded as the ‘best head’, with the ‘best thought’ and the ‘best thinking’. It also might be regarded as maximising the progressive psychological forces and managing the risks from the regressive psychological forces.

In the sections below, an explanation is given as to why each of the elements above is likely to be psychologically beneficial.

3.3.1 Humility of the ego

A degree of humility of the ego is necessary as a direct consequence of the *Theory of Non-Optimal Judgment*. Humility also aids diminishing the role of the ego. Consequently it aids diminishing the risks from ego defence mechanisms.

However, it is a certain type of humility that is considered to be necessary for an individual to reach their *psychological potential*. It is the type of humility, with its vitality arising from a combination of confidence, optimism, courage and patience in the individual’s own thought, along with rational and logical thinking that is sufficiently critical and pessimistic, to be both consistent with the reality of the *human condition*, and to offset the impact on the ego from the confidence and optimism arising from the individual’s thought. The ‘best’ humility is considered to be one that has the greatest belief in its own thought balanced with the most critical thinking regarding its own thought⁶³⁶⁴.

⁶³ One of the Delphic inscriptions was “nothing in excess”. The RPQ research did not necessarily consider moderation to be optimal, but instead it considered that the process of moderating is optimal, which in this case is moderating the ‘optimism’ of the ‘*E*’ with the pessimism of the ‘*Go*’.

⁶⁴ Saint-Exupery considers this humility is not a demeaning one, but one which “*opens the heart*”.

Continuing the example about the individual who failed an actuarial exam - if the individual has a relatively humble ego, they might be less likely to initiate their ego defences. If the student's humility is based on a considerable, confident, courageous, optimistic and patient belief in their own thought of passing the exam, and balanced with a realistically pessimistic perspective of what is rationally and logically necessary to turn their thoughts into the reality of passing the exam - then they might be considered likely to pass at the next sitting. However, if the humility is based on a lack of vitality and/or a lack of belief in the individual's own thought, then the experience of failing may be a knock to the individual's confidence in their own thought of passing. In this case, the individual might be considered to be less likely to pass next time.⁶⁵

The optimal type of humility prevents any confidence, optimism, courage and patience of the individual's own thought from reaching the individual's ego⁶⁶. It is a humility which aims to diminish the role of the ego in an individual who could otherwise have a considerable degree of self-regard if their confidence, optimistic, courageous and patience thoughts went to their head.⁶⁷

The view of classical authors on the ego is near unanimous. They consider there to be significant merit in an individual diminishing the role of their ego. In most cases they also advocate that a degree of 'sacrificing of the self' is an important element in becoming 'fully human'⁶⁸. The theme of Ibsen's *Peer Gynt* is that an ego-based philosophy of 'to thine own self be enough' results in an individual becoming a troll; while the philosophy of overcoming the self, enables an individual to become their true potential self, and consequently a 'full' human being. Maslow talks about "*finding your altar to sacrifice yourself*" as part of the process of '*self-actualisation*' and considers that "*being a human being – in the sense of being born into the human species – must be defined also in terms of becoming a human being*". Fromm describes the ego as "*man's loss of himself in the tragic attempt to escape the burden of his humanity*." Adam Smith calls the self-deceit of the ego "*this fatal weakness of mankind*" and "*a source of half the disorders of human life*". And according Lao Tzu "*The further the Sage progresses along the path of diminishing the role of the ego, the closer his approach to the Tao (the Way)*."

⁶⁵ Vitality is of paramount importance – according to Saint-Exupery it is the spirit rather than the intellect that rules the world.

⁶⁶ Or alternatively, a type of humility that prevents an individual's belief in their own thought going to their head.

⁶⁷ Such individuals are likely to have a lot of knowledge. Overcoming of the ego is more important the greater the potential size of the ego, which can be related to degree to which the individual has accumulated knowledge and learning. Knowledge and learning are not tested in the RPQ as it is assumed that they are measured elsewhere. As mentioned in an earlier section, the RPQ is designed to complement other methods of measuring an individual's risk taking and risk management capabilities, and it is assumed that assessing learning, knowledge and technical skills is one of these other methods.

⁶⁸ Furthermore, Saint-Exupery considered that an unhealthy ego was bad for an individual's memory. He considered that, having too much esteem about oneself, adds to forgetfulness – consequently impairing memory.

3.3.2 Confidence, Optimism, Courage and Patience in the ‘E’

This section discusses the importance of an individual accessing and cultivating their own thought.

The classical approach advocated to cultivate thought was to follow the advice of the Delphic inscription – ‘*Know Thyself*’⁶⁹. To ‘know thyself’, honesty with the self is necessary. The alternative realities arising from ego defence mechanisms can limit this. Therefore, understanding and overcoming an individual’s ego is often considered the first part of ‘*Know Thyself*’. It is considered to be the first step in the process of developing the potential of an individual’s own thought⁷⁰.

Classical thought has a high regard for learning and the accumulation of knowledge, but it had a much higher regard for the cultivation of thought. Only thought was considered to have the capacity to enable an individual to reach their full *psychological potential*. Anaxagoras considered the human senses to be inadequate to develop a sufficiently sound understanding of the world, and he considered that only thought had the power to do this.⁷¹ Heraclitus has a similar perspective and encouraged “*applicants for wisdom, do what I have done: inquire within*”.

A similar modern perspective is that of Guy de Maupassant who defined ‘talent’ as a “*lengthy patience*”⁷². Patience has the capacity to accept or tolerate delay, difficulty, or annoyance without getting angry or upset. Patience facilitates an individual’s capacity to develop their own thought.

The pursuit of thought is typically accredited as having aided the greatest intellectual achievements in history. For example, according to George Herbert Spencer – “*To arrive at the simplest truth, as Newton knew and practiced, requires years of contemplation. Not activity. Not reasoning. Not calculating. Not busy behaviour of any kind. Not reading. Not talking. Not making an effort. Not thinking. Simply bearing in mind what it is one needs to know*”.

⁶⁹ ‘Know thyself’ is considered to be fully translated to mean ‘know thyself in true proportion’ which means to know one’s true optimal self. Knowing and understanding the ego in order to overcome it might be a first step in this process. Typically it then involves developing an understanding of the human condition – which includes an understanding of the necessity to overcome the ego.

⁷⁰ This is consistent with the quotation from Lao Tzu at the end of the last section.

⁷¹ According to Anaxagoras, “*thought is something limitless and independent*” and “*thought possesses all knowledge about everything and has the greatest strength*” -from “Early Greek Philosophy” - Penguin

⁷² From the preface to “*Pierre at Jean*” by Maupassant. Similarly, Michelangelo said “*genius is eternal patience*”

Unfortunately, the development of an individual's own thought has become significantly less important in modern education. It is sometimes forgotten that the origin of the word 'education' is the Latin word 'educare' which means "to draw out that which lies within" and the Latin comes from 'e' meaning "out" and 'ducere' meaning "to lead; to bring forward".⁷³ This is somewhat similar to the advice advocated in the 'Art of War' by Sun Tzu, that the "Skilful strategist cultivates the Way", in other words the cultivation of their own thought.

In the theoretical framework for the RPQ, the 'E' is not exposed to defence mechanisms, making it the best vehicle for an individual's confidence and optimism. Consequently, the 'E' can be a purely progressive psychological force⁷⁴, albeit one that benefits from an individual also using and facilitating access to the full potential of their logical and rational thinking.

Access to the 'E' is limited by the ego. An individual who can honestly say to him/herself that "I know that I know nothing" and yet have confidence, courage, optimism and/or patience in their own thought might be considered to be enabling access to their 'E'.^{7576.77}

Gaining access to one's own thought is considered to be aided by, removing ego desires, silence⁷⁸ and solitude⁷⁹ and seeking the unforeseen⁸⁰⁸¹. This is often the path taken by Buddhist and other monks seeking enlightenment. In ancient Greece, the Delphic inscription 'E' was considered by some to signify the importance of using the construct 'if' which was considered to aid the pursuit of wisdom.⁸² The construct 'if' can be used to cultivate thought.

⁷³ [http://wiki.answers.com/Q/What is the Latin root word for education](http://wiki.answers.com/Q/What_is_the_Latin_root_word_for_education). The 'e' is different to the 'E'.

Although taking it as an analogy, the 'E' might be regarded as the individual's psyche outside of their ego.

⁷⁴ Albeit with the caveat mentioned below that shallow thoughts can be intoxicating.

⁷⁵ The idea that subtracting from the ego enables access to the 'E' is consistent with Taoism – "The practice of Tao consists of subtracting day by day, subtracting and yet again subtracting, till one has reached inactivity, but by this very inactivity everything can be activated" - Lao Tzu

⁷⁶ Patience rather than hope is optimum in the 'E' - "there is one form of hope which is never unwise, and which certainly does not diminish with the increase in knowledge. In that form it changes its name, and we call it patience." - Bulwer-Lytton. Patience might be considered to be an activity of the 'E' and hope an activity of the ego. Pericles considered hope to be an expensive commodity.

⁷⁷ Accessing the 'E' might also be described as "...him [her] who muses, gazing into the middle distance, receiving without expending, and distilling the elixir of thought. The silence that enables him [her] to know and also not to know - for it is sometimes well for him [her] not to know. The silence that keeps mental tares and parasites afar, and shelters the unfolding of your thoughts." – Saint-Exupery.

⁷⁸ According to Saint-Exupery - "It's only in silence that man's truth can strike root" and "For the domain of the spirit, where it can spread its wings is silence."

⁷⁹ According to Goethe, "A creation of importance can only be produced when its author isolates themselves - it is a child of solitude." And according to Stendhal, "One can acquire everything in solitude except character"

⁸⁰ "Whoever cannot seek the unforeseen sees nothing, for the known way is an impasse" Heraclitus

⁸¹ In the theoretical framework for the RQP, the 'E' includes the 'unconscious' and Jung's concept of the 'wisdom of the unconscious' can be considered similar to fully accessing the 'E'.

⁸² Plutarch – "The E at Delphi"

Democritus said that “*in reality we know nothing – for truth is in the depths [of thought]*”. The greater the depth of thought, the greater the potential it is considered to have to “*taste the Pierian spring*”⁸³. In Greek Mythology, the Pierian Spring was considered the fountain of all knowledge in Greek Mythology and to inspire whoever drinks from it. But the shallow waters of the spring were considered to intoxicate the brain⁸⁴, only deeper drinking from the depths of the spring was considered to bring a sobering experience and to bring forth the Muses⁸⁵.

The extent to which an individual is operating at their *psychological potential* depends on the extent to which the individual is using and facilitating access to the full potential of their own thought – failing to do so is failing to tap into what might be referred to as an individual’s ‘inner-genius’.

3.3.3 A Critical and Pessimistic ‘Go’

In the model of the human condition, psychological progress faces an uphill battle. Progressive thought has to ascend the hill with regressive forces and indeed nature acting against it. This reality necessitates a degree of pessimism in the rational and logical thinking of an individual.

This is consistent with classical thought. Democritus said that “*I think it's more important to think as I might during times of misfortune.*” In recent times, Thomas Hardy considered that “*if way to the Better there be, it exacts a full look at the Worst*”. Pessimism of the ‘Go’ was advocated by the Delphic inscription, “*surety then ruin*”, which could be regarded to be consistent with the more modern attitude that ‘to take something for granted will mean that it will be taken away from you’.

This pessimism of the ‘Go’ might be considered to make the psyche more likely to spot the problems that thought needs to overcome and the hurdles that thought need to jump, in order to go up the hill. This is essential to keep the focus of the ‘E’ from moving away from reality. As mentioned above, the ‘Go’ needs to be sufficiently pessimistic to balance optimism from the ‘E’ and maintain a sense of humility of the ego.⁸⁶

⁸³ Alexander Pope – An Essay on Criticism

⁸⁴ A little knowledge is a dangerous thing.

⁸⁵ According to Pope, “*There shallow draughts intoxicate the brain, and drinking largely sobers us again*”.

⁸⁶ The conflict between any optimism of the ‘E’ and any pessimism of the ‘Go’ was considered by Saint-Exupery to be beneficial to the creative process (Wisdom of the Sands).

3.3.4 Psychological Potential and Classical Athenian Thought

In summary, reaching an individual's *psychological potential* is a dynamic process that involves repeatedly facilitating and cultivating access to thought arising in the psyche – and then critically and pessimistically considering it using the rational and logical part of the psyche – in a manner that maintains humility in the ego.

In the sections above, this process is described showing that it adheres to the Delphic inscriptions, '*nothing in excess*', '*know thyself*' and '*surety then ruin*'. The greater the 'fury' of this process, the greater the degree to which larger quantities of confident and optimistic thought coming from the 'E' are being met by larger quantities of critical and pessimistic thinking from the 'Go' (whilst also maintaining humility of the ego) – the greater the extent to which the individual is considered to be reaching their *psychological potential*.

This description of the process of reaching an individual's *psychological potential* can be considered a paraphrasing of the Oresteia Trilogy of Aeschylus. In the Oresteia, Athena makes a pact with the Furies whereby "*no house can thrive*" without the Furies, and Athena urges Athenians to embrace the Furies, because by embracing them, they can turn into the "*Eumenides*", or '*the Kindly Ones*'⁸⁷. In order for the pact with the Furies to come about, it necessitated Orestes to fully accept reality (overcome his ego) and to take responsibility for his actions (which involved an overcoming of his ego defence mechanisms which then allow access to thought from his 'E'). The pact made by Athena also had the condition that it was necessary to have reverence for Persuasion⁸⁸ to appease the Furies – which could be regarded to involve fully accessing the 'Go'⁸⁹⁹⁰.

⁸⁷ This fury was necessary as Aeschylus considered that we "*suffer into truth*". This message "*does not speak to certain later more spiritual ages which sublimate our anguish into the 'blest Kingdoms meek of joy and love'*". Aeschylus speaks to a world more real. He would say with Keats '*Do you not see how necessary a World of Pain and troubles it... ? A Place where the heart must feel and suffer in a thousand diverse ways!..... thus does God make human beings. Souls, Identical Souls of the sparks of his own essence – This appears to me a faint sketch of a system of Salvation which does not affront our reason and humanity*'" Robert Fagles (the Serpent and the Eagle).

⁸⁸ The deity Persuasion

⁸⁹ Athena said that "if you have reverence for Persuasion, the majesty of Persuasion, the spell of my voice that would appease your fury..."

⁹⁰ The theoretical framework for the RPQ can be considered to have at its core the ancient Athenian values, those that dominated during the Golden Age of Athens. They can be seen in the famous funeral oration of Pericles and in the Oresteia by Aeschylus and in the works of Thucydides, Sophocles, Euripides Aristophanes, Democritus and Anaxagoras

3.4 Alternative Explanations of Psychological Potential

This section uses ideas and perspectives from general psychological and from classical authors to outline alternative explanations of what is involved in reaching an individual's *psychological potential* in order to provide additional explanation of the degree to which an individual might have reached their *psychological potential*.

In the RPQ theoretical framework, the degree to which an individual has reached their *psychological potential* is related to the healthiness of their ego. A healthy ego is considered to be one which has overcome itself and one that enables good access to the individual's 'E' and good use of their 'Go'. Unhealthy egos are considered to arise from a lack of vitality and/or an imbalance between the 'E' and the 'Go'. One type of imbalance arises when an individual enables access to their 'E' but has a relatively optimistic 'Go'. This is likely to lead to what Ibsen refers to as '*the joy of life*'⁹¹. This is characterised by a relative excess of vitality – it has confidence and optimism in the 'E' without sufficient access to the rational and logical thinking of the 'Go' to balance it. The other type of imbalance arises when an individual has considerable access to the, critical and pessimistic, rational and logical thinking of the 'Go' but without sufficient vital access to the 'E'. This is likely to lead to some forms of '*melancholia*'. To use the analogy of Oscar Wilde, it's being in the gutter but without looking at the stars.

Alternative explanations of elements of the process considered to enable an individual to reach their *psychological potential* are set out below:

3.4.1 Maslow - 'Self-Actualisation'⁹²

Reaching an individual's *psychological potential* has a lot in common with Maslow's concept of '*self-actualisation*'. The qualities attributed to Maslow's self-actualising subjects include: accurate perception, spontaneity, detachment, independence, peak experience, sense of humour, resolution of dichotomies and creativeness. Accurate perception requires overcoming the ego to see reality. Spontaneity is likely to arise from access to the 'E'. Detachment is akin to not placing a personal claim on our experiences, thereby removing the impact of the ego. Resolution of dichotomies is similar to achieving a balance between the 'E' and the 'Go'. Creativity is aided by access to the 'E'.⁹³

⁹¹ Despite what its name might suggest, Ibsen did not see this as a necessarily 'good' thing.

⁹² Self-actualisation is described in Chapter 11 of Maslow's book '*Personality and Motivation*'

⁹³ Self-actualisation is often described as 'being everything you can be'. Several other classical authors had similar concepts and perspectives, e.g. Saint-Exupery said that "*you are conscious of a driving force within you, the thrust of your vocation. If you play false to it, you are mutilating yourself.*"

Maslow considered that his self-actualised subjects “*not only tolerate the ambiguous and unstructured; they like it. Quite characteristic is Einstein’s statement, “the most beautiful thing we can experience is the mysterious. It is the source of all art and science”*”. This is akin to having good access to their ‘E’. Furthermore, according to Maslow his subjects can be solitary - which is conducive to gaining better access to their ‘E’⁹⁴ - “*they can be solitary without harm to themselves and without discomfort. Furthermore, it is true for almost all that they positively like solitude and privacy to a definitely greater degree than the average person.*”

Maslow goes further than advocating overcoming the ego. To achieve self-actualisation, he talks about “*finding your altar to sacrifice yourself*” and how “*being a human being – in the sense of being born into the human species – must be defined also in terms of becoming a human being*”. This is consistent with the theoretical framework of the RPQ.

Maslow view of the human condition is also similar to that used in this research. He says that psychological “*growth is a painful process, and may for this reason be shunned, that we are afraid of our own best possibilities, in addition to loving them and that we are all of us profoundly ambivalent about truth, beauty, virtue, loving them and fearing them too.*”

Maslow’s thought might be considered to be somewhat contradictory. He advocates overcoming the ego but also to listen to the ‘self’, without possibly fully differentiating between them. He says that “*one cannot choose wisely for a life unless he dares to listen to himself, his own self, at each moment in his life.*” This potential contradiction can be resolved by taking what Maslow calls the ‘self’ to be the ‘E’.

The morality distinction used in this research, between ‘*master morality*’ and ‘*slave morality*’ can also be seen in the thought of Maslow. According to Maslow, self-actualised people “*are fixed on ends rather than on means, and means are quite definitely subordinated to these ends. This, however, is an overly simple statement. Our subjects make the situation more complex by often regarding as ends in themselves many experiences and activities that are for other people, only means.*”

Maslow’s description of the approach used by his subjects to be creative might be considered to be one approach that could be used to enable access to the ‘E’. He says that “*the creativeness of the self-actualised person seems rather to be kin to the naïve and universal creativeness of unspoilt children... a potentiality given to all human beings at birth. Most humans lose this as they become enculturated, but some few individuals seem either to retain this fresh and naïve, direct way of looking at life, or if they have lost it, as most people do, they later in life recover it. Santayana called this the ‘second naiveté’ a very good name for it.*”

⁹⁴ This is discussed in further detail in section 3.5.

Maslow's subjects could be regarded to have the qualities of '*andreia*' and '*enkrateia*' which, in the theoretical framework for the RPQ, are likely to be associated with an individual who has reached their *psychological potential*⁹⁵. Maslow attributes the following qualities to his self-actualised subjects - "*self-decision, self-government, being an active, responsible, self-disciplined, deciding agent rather than a pawn, or helplessly 'determined' by others, being strong rather than weak. My subjects make up their own minds, come to their own decisions, are self-starters, and are responsible for themselves and their own destinies. It is a subtle quality, difficult to describe in words, and yet profoundly important.*"

3.4.2 Sophocles and Freud – 'Oedipus'

Freud considered that the character of Oedipus is in all of us to some degree⁹⁶. The ancient Athenians were very wary of the character of Oedipus. They considered it to be one that should be overcome by an individual. They put the character on stage in plays as a warning to their citizens.⁹⁷

Freud's Oedipus complex is based on the plays of Sophocles. The character of Sophocles' Oedipus is as follows: he is passionate; too complacent in his prosperity; too confident of his sufficiency; too ready to take offence or to impute blame when rattled by the approach of trouble (looks for scapegoats); he gets overbalanced (unexceptional faults or virtues may at a touch overbalance him); moral innocence but conscious of defilement; a daemonic temper; his enemy is himself; paranoid; a shooter of messengers; he even blames the gods; lets his barbaric instincts be unleashed by his ego; full of cognitive dissonance; self-tortured; denial, self-deceit, pretence to virtue; admits to small flaws to avoid admitting to bigger ones; reckless; imprudent; delusions of grandeur; selfish and savage; weak and afraid; at times insane; he doesn't know who he is. In summary, the character might be considered to have traits that are quite common. Freud considered the character of Oedipus to be in everybody – albeit that it was overcome to various degrees.

'Oedipus' is the Greek translation of '*swollen foot*'. It was the name given to Oedipus because he had a swollen foot when he was taken in by his adopted parents. Oedipus was prophesised to kill his father than marry his mother. Fearing this, his real parents decided to kill him as a child - by exposing him in the wilderness. His foot was pierced with a peg to stop him getting away. He was saved by a shepherd but his swollen foot never healed. However, 'Oedipus' is also a play on the Greek words '*Oida*', which means '*I know*' and the Greek word '*Pou*', which means '*where*'. So Oedipus's name seems to shout '*I know where*'. But he does not know where he is coming from or who he is.⁹⁸

⁹⁵ See section 3.4.7

⁹⁶ 'Why the Classics Matter' by Simon Goldhill

⁹⁷ For example: 'Oedipus Tyrannus' and 'Oedipus at Colonus' by Sophocles. Other plays are most not extant or only fragments are available, e.g. there are fragments from Euripides version of Oedipus. Oedipus is also the subject of plays in the later Roman era, e.g. by Seneca.

⁹⁸ 'Why the Classics Matter' by Simon Goldhill

Sophocles effectively argues that it is necessary to overcome yourself in order not to become like Oedipus. Freud's view was that the Oedipus complex arose from failing to overcome oedipal issues in childhood, which resulted in unhealthy distortions to the ego. These ideas are comparable to the necessity to overcome the ego in the theoretical framework of the RPQ. The ego is like Oedipus - when it is feeling dominant it is not aware of where it has come from – that is, from the thoughts arising from the 'E', and consequently it can take the 'E' for granted.

In Sophocles' play, 'Oedipus at Colonus,' Oedipus behaves in a much saner manner after his misfortune has become evident to him. This is consistent with the realism that comes from having a pessimistic 'Go' and from 'thinking as you might during times of misfortune' as advocated by Democritus.

3.4.3 Jung, Fromm, Nietzsche and Heidegger

Jung advocated what he called "*active imagination*" which is described as a state of reverie in which judgment is suspended but consciousness preserved. If this is interpreted as 'suspending' the 'judgment' of the ego but 'preserving' the 'consciousness' of the 'E', it is similar to the theoretical framework of the RPQ.

Jung also advocated that an individual progress towards what he called '*individuation*'. This concept might be considered similar to Maslow's idea of self-actualisation – and might be considered similar to what is inherently advocated in the Oresteia of Aeschylus, which is part of the basis for the theoretical framework of the RPQ.⁹⁹

In his book '*Escape from Freedom*', Erich Fromm gives his psychological explanation as to why individuals find the demands of real freedom too difficult - and why they try to '*escape*' from it in some way or another. This research has used the model of the ego and of the human condition of Erich Fromm to aid the developing the theoretical framework of the RPQ.

Fromm also discusses the "*distortion to rational judgment*" which arises from *narcissism* – when the ego falls in love with itself.¹⁰⁰ In the theoretical framework for the RPQ, narcissism might be considered to result in a serious degree of un-health in the ego – which inhibits the reaching of the individual's *psychological potential*.

⁹⁹ The Essential Jung – Fontana Press

¹⁰⁰ The Heart of Man by Erich Fromm

Reaching an individual's *psychological potential* involves overcoming ego defence mechanisms which create alternative realities, albeit likely more pleasant realities. This might be considered to be similar to Nietzsche's consideration that "*strength of mind might be measured by the amount of "truth" it could endure – or to speak more plainly, by the extent to which it required truth attenuated, veiled, sweetened, damped, and falsified*". The degree to which an individual is using ego defences, and consequently the degree to which they are sweetening, damping and falsifying reality, will negatively influence the degree to which they are reaching their *psychological potential*.

Nietzsche drew a morality distinction between what he called 'master morality' and 'slave morality'¹⁰¹. 'Master morality' was a morality based on getting things done, doing the right/best thing, and results. 'Slave morality' was a morality based on (ego distorted) efforts extended, good intentions or in the extreme, efforts based on validation of envy or begrudgery. According to Nietzsche "*The slave desires the unconditional*". In the context of the theoretical framework for the RPQ, Nietzsche's slave morality would be comparable to an 'ego morality' as the 'slave' desires the sometimes unconditional desires of the ego.

In his complex book, '*Being and Time*', Heidegger advocates his idea of "*gelassenheit*", which is often translated as "*releasement*". Heidegger described '*gelassenheit*' as "*the spirit of disponibilité [availability] before What-Is which permits us simply to let things be in whatever may be their uncertainty and their mystery*". This might be considered similar to the concept of the 'E' in the theoretical framework of the RPQ. 'Releasement' from the influence of the ego enables 'availability' of access to the 'E' and the 'E' 'permits' things to be as they are, in all 'their uncertainty and their mystery'.

3.4.4 Keats – 'Negative Capability'

Reaching an individual's *psychological potential* can be considered to be comparable to cultivating what Keats referred to as 'negative capability'. Keats said "*At once it struck me, what quality went to form a Man of Achievement especially in literature & which Shakespeare possessed so enormously - I mean Negative Capability, that is when man is capable of being in uncertainties, mysteries, doubts without any irritable reaching after fact & reason*". This is comparable to having access to the 'E' without any distortions arising from the 'irritable' reactions of ego defence mechanisms. The ego might be considered to have limited negative capability – limited by the degree to which it uses ego defence mechanisms. Whereas the 'E' has potentially unlimited negative capability, as it is not exposed to ego defence mechanisms – albeit, as described above, accessing the 'E' may not be comfortable and can be considered difficult due to the overcoming of the ego that is necessary and the uncertainty, mystery and doubt which arise from this overcoming.¹⁰²

¹⁰¹ Likely to be significantly influenced from the thought of Thucydides whom Nietzsche held in high regard

¹⁰² In certain ways, actuaries might be considered to have a significant degree of negative capacity due to their abilities to discuss mortality and other subjects without any 'irritable' reactions.

Keats thought the mind should be a “*thoroughfare for all thoughts*”. In the theoretical framework for the RPQ, this is only possible in the ‘E’ due to the limited negative capability of the ego. Keats considered “*being in uncertainty*” to a place between the mundane, ready reality and the multiple potentials of a more fully understood existence. Negative capacity has been described as “*it's like a state of non-being, removing all ego from the mind and accepting experiences without asserting one's own claims.*” – M. O’Connell (UCD).

Dylan Evans describes the similarities between negative capability and a number of comparable concepts in psychology in his book ‘*Risk Intelligence*’. He considered it to be comparable to the following ideas in psychology a) distress tolerance (from Dialectical Behavioural Therapy), b) ambiguity tolerance, c) uncertainty tolerance and d) ambiguity aversion (from psychology & behavioural finance).

The greater the degree of negative capability of an individual, the greater their capacity to avoid the psychological threat from ego defence mechanism, and the more likely they are to be reaching their *psychological potential*.

Forms of mediation might be considered to aid improving an individual’s negative capability. Keats advocated ‘*delicious diligent indolence*’ as his preferred method to aid achieving the greatest quantities of negative capability¹⁰³.

3.4.5 Adam Smith and Machiavelli – ‘Superior Prudence’

This section discusses the merits of prudence as an aid to risk taking and risk management. The extent to which prudence is beneficial is linked to the degree to which an individual has reached their *psychological potential*. According to Adam Smith, prudence is “*of all the virtues, that which is most useful to the individual*”¹⁰⁴. However, prudence is not always conducive to good risk taking. The reasoning behind this is outlined below.

Character Traits Typically Associated with Prudence

Different people are likely to have different views as to what is meant by prudence. The traits outlined in this section are those attributed by Adam Smith to prudence. They are likely to be more consistent with a British cultural viewpoint, than viewpoints from other cultures, although they are likely to be relatively similar.

Prudence is the combination of two qualities which are most useful to an individual. These are, firstly, superior reason and understanding, by which an individual is capable of discerning the remote consequences of all their actions, and of foreseeing the advantage or detriment which is likely to result from them. Secondly, self-command, by which an individual is enabled to abstain from present pleasure or to endure present pain, in order to obtain a greater pleasure or to avoid a greater pain in some future time.

¹⁰³ This is discussed further in section 3.5.6

¹⁰⁴ Theory of Moral Sentiments, Book IV, pg220

A prudent person cares about their health, wealth, position and reputation, among other things upon which their well-being and happiness depend. This is considered the proper business of prudence.

Security is considered the first and the principal object of prudence. Prudence is adverse to expose its health, wealth, position or reputation to any sort of hazard. It is more cautious than enterprising and relatively more inclined to preserve the advantages that we already possess than to prompt us to the acquisition of still greater advantages. The methods of improving our situation which it principally recommends are: those that don't involve exposure to hazards; the accumulation of additional knowledge and skill in an individual's profession; industry in the exercise of the individual's profession; and frugality in our expenses. Prudence aims to be steady, and to steadily trade the ease and enjoyment of the present for the probable expectation of greater ease and enjoyment in the future – for a more lasting time. Finally, a prudent person is typically not willing to subject themselves to any responsibility which they do not consider to be their duty.

Why Might Prudence Not Be Beneficial When Taking Risk

To explain why prudence might not be beneficial when taking risk, we need to limit the discussion to prudence on its own, or what will be referred to as 'mere prudence'. We will discuss what happens when prudence is combined with other traits in a later section.

A merely prudent individual has little anxiety to change a comfortable situation if it involves taking part in ventures which might endanger, but could very well increase, the security which they will enjoy.

Mere prudence is adverse to enter into any party disputes, does not like faction, and is not always interested to listen to noble voices or those of great ambition. At the bottom of their heart, they would prefer the undisturbed enjoyment of peace and quiet to any splendour from great ambition, and even to the real glory and honour from performing the greatest magnanimous actions.

There is a positive and negative side to this - "*he [she] who leaves nothing to chance will do few things poorly, but will do few things*" (Edward Halifax). Not taking or taking few risks might be considered by some to be good risk taking. However, not taking risk would be considered to be outside the character of a good risk taker by others. For example, Machiavelli, who said "*all courses of action are risky, so prudence is not in avoiding danger (it's impossible), but calculating risk and acting decisively. Make mistakes of ambition and not mistakes of sloth. Develop the strength to do bold things, not the strength to suffer*".¹⁰⁵

Mere prudence is likely to be risk averse, but is likely to risk experiencing regret in the future from not fulfilling its full potential. The regret may be prompted from seeing that they did not achieve as much as was achieved by others of inferior talent and intelligence, who took greater risk. Furthermore, the regret is likely to result in hindsight bias that can likely distort the rational judgment of the individual inhibiting their potential for good risk taking.

¹⁰⁵ The Prince - Machiavelli - Penguin

Furthermore, the merely prudent individual can risk experiencing envy – and the resulting distortions to rational judgment that might arise. How can prudence result in envy?

Envy is the malignant dislike of the superiority of those who are really entitled to the superiority that they possess. Envy arises when an individual, in matters of consequence, tamely suffers other people, who are entitled to no such superiority, and allows them to rise above him/her or get before him/her. This weakness commonly comes from laziness, sometimes from good-nature, in an aversion to opposition, to bustle and solicitation, and sometimes, too, from a sort of ill-judged magnanimity, which fancies that it can always continue to dislike the advantages which it then disregards, and, therefore gives up. Such weakness, however, can commonly be followed by regret; and what had some appearance of magnanimity in the beginning frequently gives place to envy in the end, and to a dislike of that superiority, which those who have attained it, may often become really entitled to, by the very circumstances of attaining it.

This reasoning could be applied to Aesop's fable of the '*Fox and the Grapes*'¹⁰⁶ - where a fox, having spent a considerable period of time trying to grab some grapes from a vine that are just out of his reach, eventually walks away exclaiming that he doesn't really want them as they are probably sour. Where the fox to subsequently see somebody eating and enjoying those grapes, he could feel envy – and experience, as a consequence, a distortion to his rational judgment.

Following the path of mere prudence can expose the individual to the risks arising from the love of and over-attachment to ease, comfort, pleasure and other gratifications. These can increasingly encourage cowardice in the individual – resulting in the individual taking even less risk – further increasing the above risks of distortion to the individual's rational judgement.

The beneficial aspect of mere prudent to an individual in their life is likely to be greatest in times of stability and order, times which are less likely to result in the individual experiencing hazards. The opposite may sometimes be true in times of strife and disorder. This is pointed out by the historian Thucydides, who points out that caution and prudence even combined with intelligence can be harmful to an individual during times of strife – *“those who were least remarkable for intelligence showed greater powers of survival. Such people recognised their own deficiencies and the superior intelligence of their opponents; fearing they might lose a debate or find themselves out-manoeuvred in intrigue by their quick-witted enemies, they boldly launched straight into action; while their opponents, over-confident in the belief that they would see what was happening in advance, and not thinking it necessary to seize by force what they could secure by policy, were the more easily destroyed because they were off their guard.”*¹⁰⁷

¹⁰⁶ The Complete Fables – Aesop - Penguin

¹⁰⁷ The History of the Peloponnesian War – Thucydides - Penguin

According to Herodotus “*great things are won by great dangers*”. Mere prudence is unlikely to take great risks, and consequently is unlikely to win great things. This is a significantly limiting aspect to the character of mere prudence and detracts from its risk taking abilities.

When is Prudence Beneficial when Taking Risk

It is necessary to distinguish between prudence in life and prudence when taking risk. The former is obviously beneficial, the latter potentially detrimental, as outlined above. However, prudence can be a great foundation on which to build good risk aptitude. This is achieved when it is combined with other virtues, specifically valour/courage, strong benevolence and regard to the rules of justice.

Adam Smith defines “*superior prudence*”¹⁰⁸ as wise and judicious conduct, when directed to greater and nobler purposes beyond that of the care of the health, the wealth, the position and reputation of the individual. He says it comes about when prudence is combined with the greater and more splendid virtues, with valour, with strong benevolence, with regard to the rules of justice, and all these supported by a proper degree of self-command. It is the best head joined to the best heart.

Superior prudence is able to expose itself to risk with less anxiousness and reluctance. When an individual learns to expose themselves to risk with less reluctance, they are less anxious to get out of it, and less likely to lose their presence of mind while they are taking risk.

By safely practicing exposure to fear, greed, overconfidence and regret, the chief passions related to taking risk, an individual can improve their self-command over these passions – and can prepare themselves to take risk more effectively in less safe conditions (just as a soldier gets training before going into war). For example, this practice can be achieved by notionally investing in ‘risky assets’ and/or investing small amounts in ‘risky assets’.

This learning to progressively expose him or herself to risk with less anxiousness and reluctance should widen the comfort zone and increase the ‘negative capacity’ of the individual, and improve their self-command – all contributing to greater risk taking aptitude.

Prudence and Classical Athenian Culture

As mentioned above, in modern society, prudence is typically regarded as the virtue that is most useful to the individual. Individuals typically seek improved security, and peace and quiet.

This is very different to the culture of ancient Athens during the classical period. This culture is personified in the Oresteia Trilogy by Aeschylus (the oldest and only surviving trilogy from ancient Athens). In it, Athena makes a pact with the Furies, whereby she urges Athenians to embrace the Furies, saying that “*no house can thrive*” without them, and that by embracing them that they become the *Eumenides* or ‘the Kindly Ones’. Consequently most Athenians preferred “*hardship and activity to peace and quiet*” (Thucydides pg75).

¹⁰⁸ Theory of Moral Sentiments pg255

Those in ancient Athens that preferred peace and quiet and wanted to mainly look after their own business were considered not to have any business being there. They were referred to as ‘*private citizens*’ as their democracy necessitated significant participation by all citizens. The Greek word for ‘*private citizen*’ is ‘*idiotes*’. Taking responsibility, an advocacy that ‘*right is right*’ (as opposed to might being right) and the embracing of the Furies were some of the cornerstones of the creation of the awesome culture of ancient Athens and the many amazing fruits which came from it. These qualities pushed ancient Athenians to take many great risks, and to win many great things – which still have people in awe 2400 years later. Embracing the fury that arises from taking risk, as opposed to running away from it is something that the Athenians did very well.

However, the Athenians were considered by the Corinthians to be always at risk of out-running their own resources¹⁰⁹. This might be regarded to have been the key element in their eventual downfall (the Sicilian Expedition). Similarly, those operating at their *psychological potentials* face a similar risk, and the main suggested feedback given to those who are considered to be operating near their *psychological potentials* is to be careful about out-running their own resources.

3.4.6 Socrates - Pseudodoxia

Socrates considered it that his ‘mission’ was to bring the distorted logic of his fellow Athenian citizens to their attention¹¹⁰. A non-exhaustive list of examples of possible distorted logic is outlined below:

- Thinking based on false assumptions and arising from dysfunctional learnt behavioural patterns.
- Immoderate or intemperate behaviour – e.g. resulting from failure to control irritable reactions of the mind, which blow out and distort the flow of light to the mind and reduce awareness of Adam Smith’s ‘*impartial spectator*’.¹¹¹
- Thinking biased by fear (e.g. catastrophising)
- Thinking biased by greed (e.g. coming from immoderate ego desires)
- Thinking biased by hubris: According to Pope, pride is “*the never failing vice of fools*”.
- Thinking with other distorting biases¹¹²
- General wishful thinking – including any immoderate optimism biases, and/or combined with any lack of responsibility and/or any lack of access to the ‘*E*’

¹⁰⁹ History of the Peloponnesian War – Thucydides – pg75

¹¹⁰ He might be considered to have gone too far with such criticism as he was executed. I apologise in advance for any unintended criticisms that might be contained in this research paper. Given the original nature of the RPQ research, it might be likely that this research paper contains elements of pseudodoxia.

¹¹¹ Theory of Moral Sentiments

¹¹² Albeit an individual named Bias was one of the seven sages of ancient Greece, and bias in statistical analysis is not always a bad thing.

- Beliefs – some individuals can believe that they are a god’s chosen people or chosen person or that a ‘god’ favours them. The effect of beliefs is quite complex. Faith is considered a virtue by many philosophers – albeit some like Schopenhauer say that *“religion may be an excellent means of taming and training the perverse, obtuse and wicked biped race: but in the eyes of the friend of truth every fraud, however pious is still a fraud”*¹¹³. Furthermore, when beliefs become immoderate they can become regressive.
- Forms of ‘escape’ – including those which use a *“symbiotic participation in another’s life” [or lives] that give the person ‘the illusion of acting’*” – Fromm.
- Lack of vitality and action – possibly justified by comparing it to be being better than any ‘bad’ actions of others, e.g. actions based on ‘slave morality’.
- Attempting to be free without responsibility – leading to any ill-conceived rebellious intentions towards society.
- Logic driven by panic or mania or mere enthusiasm.
- Immoderate vitality with behaviour characterized by having Ibsen’s concept of ‘*the joy of life*’.
- Thinking based on the use of manipulation or other regressive methods to achieve an individual’s aims – rather than thinking back on reason and persuasion
- Thinking overly influenced by the thinking of others – e.g. from too much empathy or erroneously devolving responsibility to others.
- Being reactive rather than proactive – it is considered that to be better to start from an objective view point, rather than being just open to stimuli. Being reactive might be regarded to come from lack of *enkrateia*. Being reactive can be a sign of weariness. *“What use are these people’s wits, who let themselves be led by speechmakers, in crowds, without considering how many fools and thieves they are among, and how few choose the good? The best choose progress towards one thing, a name forever honored by the gods while others eat their way towards sleep like nameless oxen”* – Heraclitus
- Wanting to avoid conflict – Heraclitus consider than an individual was *“a fool who wanted no conflict among us, gods or people.”*
- Using logic from an immoderate unbalanced perspective- resulting in the creation of extremes.
- ‘Thinking without thought’ – what might be regarded as mental discipline running riot resulting from a lack of access to the ‘E’ and any resulting lack of imagination that might arise.
- A ‘passive dependency disorder’ – often described as a *“need for you to help me”* (Peck).
- A ‘chancer’ mentality.
- Giving too much credence to historical information.
- Extremely distorted logic, schizophrenia and *“giving up trying to be and adult and retreating from adult demands into sainthood”* – Peck

¹¹³ ‘The Horrors and Absurdities of Religion’. Schopenhauer specifically excludes piety to the Greek gods from his conclusion mentioned above.

3.4.7 The Greeks – ‘Andreia’ and ‘Enkrateia’

The Greeks highly valued two virtues which they considered to be of significant benefit to individuals. They were ‘*enkrateia*’ and ‘*andreia*’. In the theoretical framework for the RPQ, both are considered to aid an individual reaching their *psychological potential*.

Enkrateia is defined as self-governance, self-mastery, self-control or discipline.¹¹⁴

In Plato’s ‘Republic’, he considered that the human personality is characterised by numerous, more or less distinct ‘sub-egos’. At various times individuals are fathers, mothers, children, students, teachers, workers, friends, etc. In this content, *enkrateia* was the development or emergence a specialized sub-ego, an inner governor or inner lawgiver, which directs the others. It was considered that this leader had a difficult task, because other sub-egos are prone to rebellion. Plato explains this using a metaphor of a ship's captain and mutiny-prone crew.

In the theoretical framework for the RPQ, *enkrateia* can be achieved by following the principle ‘*Know Thyself*’ and by achieving a proportionate balance between optimism in the ‘*E*’ and pessimism in the ‘*Go*’.

Enkrateia is similar to Maslow’s idea of ‘*autonomy*’, which according to Maslow means “*self-decision, self-government, being an active, responsible, self-disciplined, deciding agent rather than a pawn, or helplessly ‘determined’ by others, being strong rather than weak. My subjects make up their own minds, come to their own decisions, are self-starters, and are responsible for themselves and their own destinies. It is a subtle quality, difficult to describe in words, and yet profoundly important.*”

The ancient Greeks considered that self-control was not a widely held trait in individuals. This might be considered to be an ancient justification for the necessity of the field of risk management. In order to conduct risk management, *enkrateia* can be regarded as a prerequisite.

Andreia is the ancient Greek word for manliness, courage and manly spirit and represented the virtue of the warrior - bravery or courage – which is needed to counter faint-heartedness, laziness and over-attachment to pleasure¹¹⁵. It can be considered an attitude of 'taking the fight to the enemy', where the enemy is one’s own foolishness, vice and ignorance. An example of this might be the ‘*getting ready for work*’ feeling – albeit it goes beyond that. *Andreia* can be considered to be a willing-ness for, or even a love of, toil and effort.

¹¹⁴ The root ‘*kratia*’ means government, and is the basis of such words as democracy (demokratia, rule by the people).

¹¹⁵ www.john-uebersax.com/plato/words/andreia.htm

Andreia was needed to counter-act two types of regressive impulses. Firstly, fear and anger which come quickly, and are considered difficult to control in the short term, but once controlled the danger has mostly passed. And secondly, attachment to pleasure, which attacks slowly over time, so although it is considered relatively easy to control in the short-term, it gets increasingly difficult to control in the long term.

In the theoretical framework for the RPQ, *andreia* might be considered to aid both reducing the threat from fast-acting and slow-acting ego defence mechanisms, thereby helping an individual overcome their ego and be more likely to reach their *psychological potential*.

3.4.8 Greek Mythology

The heroes in Greek mythology might be considered to have behaved in ways that were consistent with moving towards reaching their *psychological potential*.

The Greeks worshipped men of action, and men of action who changed things were called heroes. The great demigod hero of Greek mythology, Heracles, could be considered to symbolize the Greek idea of *andreia*. His famed labours can be interpreted allegorically to represent psychologically progressive activities. For example, Heracles slaying the hydra, at an allegorical level, is regarded to symbolize the fierce combat needed to defeat ones ego.¹¹⁶ In the play ‘*Alcestis*’ by Euripides, the character Heracles says that “*the task you speak of fits well with my destiny (a path ever hard to tread, ever leading uphill)*”. Heracles might be considered to be an individual who by performing difficult tasks, ascended ‘the hill’ of the *human condition*, whereby he moved towards reaching his *psychological potential*.

Similarly the Greek hero Odysseus is typically referred to as the “*much enduring, noble Odysseus*” in the *Odyssey* by Homer. He can be considered an individual who endured the difficulty inherent in the *human condition*, and an individual who did so in a noble way, by also thinking about the interests of others. He became a hero by overcoming the many obstacles and hurdles set before him by the Gods.

Achilles was considered the greatest warrior in ancient Greece. He was educated by Chiron the Centaur who was considered the best educator in ancient Greece (albeit he was mythical, being a centaur, half man and half horse). Chiron taught Achilles both the ‘*ways of man*’ (about the progressive forces in the human condition) and the ‘*ways of the beast*’ (about the regressive forces in the human condition). This enabled Achilles to develop his own progressive forces – but also enabled him to understand and defend himself against the regressive forces, including those of his enemies. His teachings could be considered to have aided the development of a healthy ego in Achilles, enabling him to reach his *psychological potential*.¹¹⁷

¹¹⁶ www.john-uebersax.com/plato/words/andreia.htm

¹¹⁷ Chiron’s ‘teachings’ could be used to put the ‘rrrrrr’ in geeks – to turn them into Greeks (joke!)

3.4.9 Other Perspectives

This section considers other viewpoints which differ from those of the theoretical framework for the RPQ. It considers the contemporary concepts of an individual's comfort zone, the idea of detachment and professionalism and the concepts of success and cheerfulness.

"We know what is right and understand it, but we don't put it into practice, some out of laziness, others by letting some other pleasure come first and life has many pleasures – long hours of conversation, and time to do nothing (precious moments can lead us astray)"
Phaedra (from the play 'Hippolytus' by Euripides)

In the model of the *human condition* outlined in section 3.2, going 'uphill' is not considered to be a comfortable experience. What individuals get for themselves (food, money, provisions etc.) is only beneficial for them if it helps them require more of themselves. If they get things for themselves that only result in them feeling better about themselves, and not also requiring something of themselves, it is likely to be psychologically regressive. This is at odds with the modern and commonly held viewpoint that having more money and having more material goods is a good end in itself. Similarly, *'treating yourself'*, *'being nice to your-self'* or *'being dear to your-self'* and letting the experience go to an individual's head are often considered desirable. In the theoretical framework for the RPQ, these are regressive forces that push the individuals 'down the hill' and are considered stronger than the progressive forces pushing them up the hill. According to Lao Tzu – *"To be orphaned, needy, and ill-provided is what men most hate; yet princes and dukes style themselves so. Truly, things are often increased by seeking to diminish them and diminished by seeking to increase them."* According to Plato, *"The greatest evil to men, generally, is one which is innate in their souls, and which a man is always excusing in himself and so has no way of escaping. I mean what is expressed in the saying that every man is and ought to be dear to himself... From this same fault arises the common habit of regarding our own ignorance (amathia) as wisdom, and of thinking we know all things when, so to speak, we really know nothing."*

The power of the regressive forces in the human condition can be seen in the way in which it is used by marketing experts. For example, the world's largest cosmetics company L'Oréal uses the slogan *"because I'm worth it"*. In the theoretical framework for the RPQ, this might be considered a ploy to attract the stronger regressive forces in individuals, those of their ego, towards purchasing their products¹¹⁸. It is likely to attract more purchasers than if it appealed to the progressive forces in the individuals, e.g. by suggesting that they wash their hands more often.

¹¹⁸ Similar techniques are used in the construction of the RPQ to help prevent gaming of the questionnaire.

In the theoretical framework of the RPQ, progressing uphill is not considered to be a comfortable experience¹¹⁹. However, it is a commonly held viewpoint that staying inside an individual's 'comfort zone' is something to be desired. The individuals that are likely to be reaching their *psychological potential* are likely to have very wide comfort zones and to be frequently outside them.

The ethos of professionalism is consistent with the theoretical framework of the RPQ. It involves detachment, which could be considered to aid overcoming the ego's influence on the individual's judgment. It also necessitates considering that others may have different viewpoints and that those viewpoints can be correct – in other words pessimistically considering that the individual's own viewpoint might not be correct. This could be considered to aid humility of the ego. However, fully reaching an individual's *psychological potential* is likely to necessitate pessimistically and actively seeking out problems that might arise with the individual's viewpoints – so going beyond being a professional.

Success is commonly considered to be an opportunity for self-congratulating. However, according to Bill Gates "*success is a lousy teacher. It seduces smart people into thinking they can't lose*". In the theoretical framework for the RPQ, it is necessary to moderate the ego after any success to avoid any loss of humility.

Seriousness is commonly considered to be a trait of hard working individuals. However, according to Wordsworth cheerfulness is likely to be a better trait as "*a cheerful life is what the Muses love; a soaring spirit is their prime delight*". In the *Odyssey* by Homer, Odysseus would try to get his men in good cheer ahead of any danger – as he considered that being in good cheer was an excellent defence against fear - "*...and heartened all my comrades with cheering words, so that no man might falter with fear.*" – Homer. Having an element of cheerfulness is more likely to aid an individual reaching their *psychological potential*.

¹¹⁹ Or it is considered to be a painful one (Maslow) or one that involves suffering (Aeschylus)

3.5 Environmental Factors Influencing *Psychological Potential*

An individual's environment is likely to influencing their ability to reach their *psychological potential*.

3.5.1 The Aggregation of the Human Condition and the Group Ego

Aggregating the model of the *human condition* outlined in section 3.2 produces what the Greeks referred to as '*The Iron Age of Man*'. In the '*Iron Age of Man*' nature and the regressive forces are dominant across the majority of individuals' lives. Egos dominate and shun the discomfort of psychological progress. The '*might*' of the regressive forces acting on them is dominant – '*might*' is '*right*'¹²⁰. Albeit, by applying '*might*' an individual falls down the hill¹²¹. Making '*right*' to be '*right*' is extra difficult because the individual no longer just has to go up the hill, they are also constrained by regressive interactions of individuals who are falling down their own hills. Individuals who are lacking the help that might come from access to their '*E*', many consider that they need '*might*' to fight '*might*', and opt to confront egos with bigger egos of their own – which would amount to an unhealthy adjustment to society.

Furthermore, Machiavelli considered that "*there are three classes of minds: one which comprehends by itself; another which appreciates what others comprehend; and a third which neither comprehends by itself nor by the showing of others; the first is the most excellent, the second is good, and the third is useless.*" In the '*Iron Age of Man*', the third type dominates¹²². The third type of mind cannot think for itself nor understand the thinking of others. It needs to form groups and relationships with others in order to survive. The thinking of the groups becomes the narratives according to which the groups live as these are typically simple and understandable by the egos in the groups.

¹²⁰ According to Hesiod, this is a time when "*Might will be Right*". A time when most are "*wretched*"; "*the just, the good, the man who keeps his word will be despised, but men will praise the bad and insolent*"; "*shame will cease to be*"; "*men will do injury to better men by speaking crooked words and adding lying oaths*"; "*everywhere harsh-voiced and sullen-faced and loving harm, envy will walk along with wretched men*"; and "*men will destroy the towns of other men*"

¹²¹ '*Might*' is a regressive force. Right is the progressive force.

¹²² This view is shared by Maslow. He says that "*the trend in our culture is very clearly towards widespread down-levelling. The lower needs are being heavily overused for explanatory purposes and the higher and metaneeds are being badly underused*"

'Group egos' are formed when individuals form into groups, alliances or relationships with others. Upset or injury to the group or the group narrative is likely to generate 'group ego defences mechanisms'. The degree that a grouping of individuals results in the aggregated progressive force in the group being greater/less than the sum of the individual progressive forces, is considered to determine the degree of 'health'/'un-health' of the group ego. If the grouping results in the aggregated progressive force being greater/less than the sum of the individual progressive forces, then the group will be less/more at risk of using group ego defence mechanisms than would be the individuals acting on their own, making the group less/more inclined than otherwise to distort reality.¹²³

3.5.2 The Group Risk Personality Questionnaire (Group RPQ)

The Group RPQ aims to assess, from a psychological perspective, to what extent a group is greater or less than the sum of its parts. It does so by quantitatively estimating the extent to which the aggregated progressive force in the group is greater or less than the sum of the individual progressive forces.

For example, suppose a certain group is made up of seven individuals. Suppose three of them have a greater degree of slave morality and four of them have a greater degree of master morality. If when the individuals are acting as a group, the group has a greater degree of slave morality, then the progressive force in the group might be considered to be less than the sum of the individual progressive forces. The group ego is considered to be relatively unhealthy.

As an opposite example, suppose a certain group is made up of nine individuals. Suppose three of them consider that participation in the group was important beyond just looking after each individual's private interests, while six of them consider that they should mainly look after their own business. If when the individuals come together as a group, the group consider that participation was important beyond just looking after each individual's private interests, then the progressive force in the group might be considered to be greater than the sum of the individual progressive forces. The group ego is considered to be relatively healthy.

The Group RPQ is a necessary complementary questionnaire to the RPQ as there are extra influences on the degree to which an individual is reaching their *psychological potential* when the individual becomes part of a group – and these influences differ depending on the group.

The construction of the Group RPQ is described in section 5.2.

¹²³ The impact of a very regressive group ego and the necessity for an individual's progressive force to overcome the group ego defences is the subject of Ibsen's famous play 'An Enemy of the People'. In the play a town's water supply has been polluted – poisoning the people. But fixing it is likely to cause economic hardship in the short term which is unpalatable by the majority of the people in the town. However, one individual (Dr. Stockmann) tries to 'blow the whistle' – and in the process discovers that "*he is strongest who stands most alone*" – only the individual with the strongest progressive force has the psychological capacity to stand alone, and indeed against, the group.

3.5.3 Constraints arising from Social Pietas

Individuals need to adjust to social norms¹²⁴. These norms typically arise from the majority of the third type of minds (of Machiavelli). Why the need to adjust? An individual with a humble ego potentially has the progressive force on their side. An individual who is confident and assertive has the regressive force on their side, and is consequently more powerful¹²⁵ – so there is a necessity for the humble ego to adjust somewhat. For example, if a humble university professor joined a discussion on one of 4FMs talk shows, they would almost certainly lose any argument discussed.¹²⁶

Failing to sufficiently adjust to society puts the individual at risk of being labelled ‘mad’¹²⁷. A ‘mad’ individual is frequently defined as an individual who is significantly different from everybody else. In other words, the individual who is not adapted to society is potentially destroyed by it.¹²⁸

The environment in the ‘*Iron Age of Man*’ might be considered to be ‘*dysfunctional*’ – and the necessity to adjust to it makes reaching an individual’s *psychological potential* more difficult. This dysfunctional environment makes *enkrateia* necessary to a greater degree for an individual to reach their *psychological potential*. Tolerance to endure, to adjust to and to rise above the ‘*dysfunction*’ is considered important. This was one of the qualities embodied in the Greek hero Odysseus, and in Pericles, the great Athenian leader who took ancient Athens to the height of her civilization. The optimum degree of adjusting might be considered to be that advocated by Maslow – he describes this in his self-actualised subjects as a “*detached withholding from complete cultural identification*”. Detachment is considered necessary to maintain the degree to which the individual is reaching their *psychological potential* – to avoid becoming part of any group ego defence mechanisms.

The other side of the coin is that ‘intelligence’ is sometimes defined by the people an individual hangs around with – due to the influence that it has on him/her. Being in environment where other individuals are exercising their progressive forces makes being progressive less difficult – as it is less constrained¹²⁹¹³⁰. And vice versa, being in a regressive environment makes being progressive more difficult.

¹²⁴ Social pietas is described in the Theory of Non-Optimal Judgment in section 3.2

¹²⁵ The confident and assertive ego contained the stronger regressive force. But although it might win, it will become less healthy in the process. The progressive force is weaker, but becomes stronger with use.

¹²⁶ Mark Twain advised “*never argue with stupid people, they will drag you down to their level and then beat you with experience*”.

¹²⁷ This is not referring to clinical definitions of the word.

¹²⁸ See footnote in earlier section about Dostoyevsky’s novel ‘The Idiot’ (section 3.2)

¹²⁹ Classical authors typically had a very strong desire to have lived in ancient Athens - which they considered to be the most progressive environment in human history.

¹³⁰ There is a quote from Francis Bacon on one of the windows in Staple Inn – “*I hold every man a debtor to his profession*” – this could be interpreted as the profession providing a progressive environment for the individual’s progressive forces to be exercised with less constraint than if the progressive environment of the profession was not there – hence the individual is a debtor to their profession.

When an individual fails to healthily adjust, various degrees of unhealthy adjustment are likely, which can make an individual's ego unhealthy to various related degrees.

Examples of unhealthy adjustments are *masochism* and *sadism*. Masochism might be considered to arise when an individual chooses not to pursue one of their progressive forces, because pursuing it results in forms of disruptive conflict in the group to which they are a member, which then triggers an ego reaction to give up pursuing the progressive force (and thereby maiming the individual's progressive force). For example, a student who initially struggles to do mathematics, and who is then told that they are "no good at maths", and who then gives up because getting up the hill to understand maths and to overcome the social pietas constraints is too difficult for them. Sadism might be considered to arise when an individual unhealthily adjusts to the use of a regressive force and considers it to be a progressive force. For example, an individual who has neglected their own progressive forces and who uses their regressive forces to create the pretence of pursuing their progressive forces, e.g. by controlling an employee's progressive force because the individual cannot control their own progressive force. Fromm described this as aiming to have "*complete mastery over another person, to make of him a helpless object of our will*"¹³¹ According to Fromm, such an individual has neglected their 'love of life' and has substituted it with a 'love of death' because the 'controlling' is likely to be very destructive.¹³²

However the most common form of unhealthy adjustment might be choosing the 'line of least resistance' in a group rather than the 'line of greatest advantage' because the group ego is least likely to be threatened by an appeal to the lowest common denominator.

¹³¹ Erich Fromm, *The Heart of Man*

¹³² This paragraph is based on 'The Heart of Man' by Erich Fromm. According to Fromm if an individual cannot grow in the human condition (e.g. because of ego issues), then it needs to destroy. It can either do that by destroying itself, masochism, or by destroying others, sadism.

3.5.4 Alternative Perspectives on the Merits of Groups

Ancient Athenians generally considered that groups and committees were (although not always) inferior to individuals. According to Solon¹³³, “*when you are managing your own affairs, each of you is as clever as a fox on the run, but as soon as you come together, you lose your wits*”. According to Euripides “*a whole body of experts, are no match for one man of average ability exercising his independent judgment..... it is one man who achieves what is needed*”. Committees were considered to have a likely potential to descend to the lowest common denominator because there were more ‘asses to cover’. This was considered to result in various kinds of sub-optimal decisions. According to Thucydides, in committees “*the apathy of one damages the interests of all*”. According to Pericles, one of the key strengths of Athens was that “*we do not say that a man who takes no interest in politics is a man who minds his own business; we say he has no business here at all*”¹³⁴.

3.5.5 The Iron Age of Man and Political Economics

The model of the ‘*Iron Age of Man*’ is consistent with the principles of political economics.

In political economics, all progressive political policies have to overcome the following three principles:

- Don’t shock the system
- Protect / don’t threaten the establishment
- Keep the little man on the hook, get as much as you can out of him, don’t kill him, but get as much as you can out of him

These can be interpreted in the framework for the RPQ as:

- Protect the group ego
- Protect / don’t threaten the mightiest members of the group
- ‘*Might*’ is ‘*right*’

The best political system might be considered to be one where it is least difficult to overcome these principles. Similarly, the best group ego might be considered to be one where it is least difficult to overcome the constraints on the group ego, and consequently where the constraints on ‘*right*’ being ‘*right*’ are the least.

¹³³ Solon was an Athenian statesman, lawmaker and poet. <http://en.wikipedia.org/wiki/Solon>

¹³⁴ Modern thinkers such as Thoreau and Fromm considered that disobedience was a condition for self-awareness and to have a real capacity to choose. This was famously tested in Milgram’s experiments. However, the effect of disobedience is ignored in the Group RPQ – it is something to be considered for any future development of the test.

3.5.6 Optimum Environments for Enabling Access to the ‘E’

This section outlines what classical authors considered to be the optimum environments to facilitate thought and to cultivate the progressive forces within an individual.

The Greeks considered the optimum environment to be *ataraxia*. It is the Greek term used to describe a lucid state of robust tranquillity, characterized by on-going freedom from disruptive distress and disruptive worry. *Ataraxia* is specifically the freedom from unnecessary mental disturbance. *Ataraxia* is achieved in part by means of *apatheia* which is the absence of disordered passions. But the problem here is not passions, rather the false opinions which cause the passions to be misconstrued or exaggerated. Both *apatheia* and *ataraxia* are achieved by removing false opinions.¹³⁵

Other authors considered silence or solitude and certain forms of indolence to be optimum. Keats described this as “*delicious diligent indolence*”¹³⁶. This might be considered to be indolence of the ego and diligence of the ‘E’ producing some of the higher joys in life.

In the framework of the RPQ, laziness of the ego is considered to be good when it encourages access to the ‘E’ but bad when it is a result of ‘over-attachment to pleasure’.

Steinbeck highly regarded laziness – he said “*in some beastly way this fine laziness has got itself a bad name. It is easy to see how it might have come into disrepute, if the result of laziness were hunger. But it rarely is. Hunger makes laziness impossible. It has even become sinful to be lazy. We wonder why. One could argue, particularly if one had a gift for laziness, that it is relaxation pregnant of activity, a sense of rest from which directed effort may arise*” ... “*Only in laziness can one achieve a state of contemplation which is a balancing of values, a weighing of oneself against the world and the world against itself. A busy man cannot find time for such balancing*”¹³⁷.

Goethe, Saint-Exupery and Lao Tzu highly regarded solitude and silence. According to Goethe “*A creation of importance can only be produced when its author isolates himself - it is a child of solitude*”. According to Saint-Exupery, “*it's only in silence that man's truth can strike root*” and he said that “*the domain of the spirit, where it can spread its wings is silence*”. Similarly Lao Tzu considered that – “*quietness is lord and master of activity*”¹³⁸.

Thoreau and Kahneman highly regarded walking¹³⁹. And Aristotle argued that the main purpose of leisure should be to cultivate philosophy¹⁴⁰.

¹³⁵ <http://www.john-uebersax.com/plato/words/ataraxia.htm>

¹³⁶ Various other poets have similar phrases, e.g. Irish poet Mary Dorcey uses the term ‘arduous sloth’.

¹³⁷ Steinbeck – The Log from the Sea of Cortez

¹³⁸ These comments might explain why some monks retreat into solitude to access their own thoughts to reach enlightenment. Silence can be considered to enable access to the ‘E’ so that an individual can progress towards ‘knowing thyself’. According to Lao Tzu, “*knowing others is wisdom, knowing yourself is Enlightenment*”

¹³⁹ Walden ‘Life in the Woods’ and Kahneman ‘Thinking, Fast and Slow’

¹⁴⁰ Aristotle ‘The Politics’

These conditions can be difficult to achieve for individuals. However, it is considered that the degree to which they pursue attaining them is likely to aid their reaching their *psychological potential*. Pursuing such environments might be considered to be pursuing the desires of the ‘E’ rather than the desires of the ego.¹⁴¹

3.6 Comparison with Existing Research

3.6.1 Comparison with Theories in Behavioural Finance

The theoretical framework for the RPQ can be mapped onto the behavioural heuristics and biases in the theory of behavioural finance. Below is a mapping which briefly outlines some of the heuristics and biases, followed by the corresponding explanation that arises from the theoretical framework for the RPQ:

- Anchoring and adjustment – whereby individuals are considered to start with an initial idea of the answer (“*the anchor*”). They then adjust away from this initial anchor to arrive at their final judgment.
- In the theoretical framework for the RPQ, this might be considered to be a lack of vitality in the exercise of the individual’s ‘E’ and their ‘Go’ - resulting in a lack of sufficient thought and a lack of critical thinking¹⁴².
- Framing – whereby the way a choice is presented (“*framed*”) and, particularly, the wording of a question in terms of gains and losses, can have a big impact on the answer given or the decision made.
- In the theoretical framework for the RPQ, framing might be considered to arise due to the influence of the ego, which might use its defence mechanisms when confronted with any unpleasant or uncomfortable experiences to distort reality and the individual’s behaviour resulting from this distortion.
- Dislike of negative events – whereby the “*valence*” of an outcome (the degree to which it is considered as negative or positive) can have a big enormous influence on the probability estimates of its likely occurrence
- In the theoretical framework for the RPQ, this dislike of negative events is related to ego defence mechanisms. The health of the individual’s ego will potentially bias their probability estimates. But this research splits the influence mentioned above into two camps. Individuals with the ‘*joy of life*’ are likely to be relatively over-optimistic and individuals with degrees of melancholia are likely to be relatively pessimistic in their probability estimates.¹⁴³

¹⁴¹ However, in the extreme, silence and solitude can also be dangerous conditions for an individual unless they are also accompanied by diligence of the ‘E’ – nothing in excess.

¹⁴² This could also be regarded as a lack of psychological ‘fury’ - if taking the ancient Athenian perspective

¹⁴³ The ‘joy of life’ and ‘melancholia’ are discussed in section 3.4.

- Representative Heuristics — whereby people find more probable that which they find easier to imagine. As the amount of detail increases, its apparent likelihood may increase (although the true probability can only decrease steadily). Availability Heuristics — whereby people are influenced by the ease with which something can be brought to mind. This can lead to biased judgements when examples of one event are inherently more difficult to imagine than examples of another.
- In the theoretical framework for the RPQ, these heuristics arise from a lack of access to the individual's 'E'. To take the analogy of Alexander Pope "*a little learning is a dang'rous thing; drink deep, or taste not the Pierian spring¹⁴⁴: there shallow draughts intoxicate the brain, and drinking largely sobers us again*". In this research, any ease of imagination or any ease to which something can be brought to mind are likely to be a regressive psychological force. Adequate use of the 'E', and the 'Go', are necessary to overcome this force.
- Overconfidence – whereby people tend to overestimate their own abilities, knowledge and skills. Moreover, research shows that the discrepancy between accuracy and overconfidence increases (in all but the simplest tasks) as the respondent is more knowledgeable! (Accuracy increases to a modest degree but confidence increases to a much larger degree.)
- In the theoretical framework for the RPQ, this bias quite simply arises from an unhealthy ego – because the individuals have let their knowledge 'go to their heads'. A key flaw in the theories of behavioural finance might be considered to be the non-consideration of the ego.
- Mental accounting – whereby people show a tendency to separate related events and decisions and find it difficult to aggregate events.
- In the theoretical framework for the RPQ, this can be considered to arise from a lack of *enkrateia*.
- Effect of options – whereby different 'effects' can be observed. For example, the *primary effect* — people are more likely to choose the first option presented; the *recency effect* — in some instances, the final option that is discussed may be preferred; other research suggests that people are more likely to choose an intermediate option than one at either end; a greater range of options tends to discourage decision-making. On the other hand, a higher probability is attributed to options explicitly stated than when included in a broader category; *status quo bias* — people have a marked preference for keeping things as they are; *regret aversion* — by retaining the existing arrangements, people minimise the possibility of regret (the pain associated with feeling responsible for a loss); and *ambiguity aversion* — people are prepared to pay a premium for rules.¹⁴⁵

¹⁴⁴ where the Muses reside

¹⁴⁵ Most of the descriptions for the heuristics and biases of behavioural finance have been taken from, or are paraphrases of the Core Reading in subject ST5 of the Institute & Faculty of Actuaries

- In the theoretical framework for the RPQ, the *primary effect*, that is being more likely to choose the first option could be considered more likely if mental ‘effort’ was exerted in understanding it, and if this ‘effort’ went to the individual’s head - this subjective understanding is then valued by the ego due to the effort expended in attaining it - and ego defences can then kick in to defend this effort. The more options available the more likely the ego defences will take flight - instead of choosing to fight. When there are many options, ego flight is likely, resulting in a discouragement to discussion making or resulting in the last option being chosen – as it has not been challenged to a ‘fight’ yet. Status-quo bias, regret aversion and ambiguity aversion might be considered to arise due to a lack of ‘*superior prudence*’ – i.e. a lack of courage, confidence, optimism or patience in the individual’s ‘*E*’.

The explanations above might be considered to provide additional explanatory capacity over that of the heuristics and biases in behavioural finance.

3.6.2 Psychological Potential and the Myers Briggs Type Indicator

The Myers Briggs Type Indicator assessment aims to categorise individuals according to the extent to which they have a tendency for:

- Introversion (I) or Extroversion (E)
- Sensing (S) or Intuition (I)
- Thinking (T) or Feeling (F)
- Judging (J) or Perception (P)

Each individual is considered to be a certain ‘type’ depending on their combination of tendencies, e.g. an individual who had tendencies for introversion, sensing, thinking and judging would be categorised as having an ‘*ISTJ*’ type. According to the theory behind the assessment, all individuals have different ‘*gifts*’ and none are necessarily better than others.

However, according to Maslow, in self-actualised individuals, their dichotomies are likely to have been resolved - e.g. the dichotomies of “*introverted-extraverted*” and “*thinking-feeling*”. In self-actualised individuals “*duty cannot be contrasted with pleasure or work with play, when duty is pleasure, when work is play, and people doing their duty and being virtuous are simultaneously seeking their pleasure and being happy*”¹⁴⁶. Consequently, it could be argued that self-actualised individuals are more likely than average to get similar scores in, say, introversion and extroversion, and between the other dichotomies in the *Myers Briggs Type Indicator*.

¹⁴⁶ This is according to Maslow in ‘Motivation and Personality’ Chapter 11. In chapter 11, Maslow discusses this issue in fuller detail in the section titled ‘Resolution of Dichotomies’.

Given that there is likely to be a degree of correspondence between self-actualised individuals and individuals who have reached, to a greater degree, their *psychological potential*, getting any ‘null’ results from any elements of the ‘*Myers Briggs Type Indicator*’ might be considered to be a positive indicator that an individual was closer to reaching their *psychological potential* than they might otherwise be.¹⁴⁷

3.6.3 Poor Performance of Experts - Tetlock

In Tetlock’s research¹⁴⁸ - if we assumed that the experts who had the biggest media profiles also had the biggest ‘egos’, then these individuals were likely to have their *psychological potential* limited by their ‘egos’, and consequently their psychological capacities for risk taking and risk management were also limited. Consequently, in the theoretical framework for the RPQ, these experts would not be expected to perform particularly well in making forecasts – despite their likely significant levels of knowledge and experience.

These experts, the ones with the biggest media profiles, are least likely to have the humility of ego necessary to reach their *psychological potential*. An interesting follow-up to Tetlock’s research might be to try to categorise his experts by some measure of humility of ego and to investigate the extent or otherwise that this was correlated with the performance of their forecasts.

3.6.4 Contradictory Conclusions on the Merits of Psychological Traits

In the theoretical framework for the RPQ, there are particular circumstances when positivity and optimism are psychologically beneficial for an individual (when they are applied to their ‘E’) and when negativity and pessimism are psychologically beneficial for an individual (when they are applied to their ‘Go’). This theoretical framework provides an alternative methodology to facilitate resolving the contradictions that exist in general and popular psychology related to the ‘power’ of positive or negative thinking.

Similarly, there are contradictions in general and popular psychology about the merits of confidence. In the theoretical framework for the RPQ, confidence in the ‘E’ is beneficial – it breeds wisdom, while confidence in the ego breeds ignorance. This might be regarded as consistent with research of Tomas Chamorro-Premuzic. His research might be regarded as advocating that low levels of confidence in the ego. Other research, advocating confidence, often advocates having confidence in an individual’s ‘*true self*’. The concept of the ‘*true self*’ is somewhat comparable with the concept of the ‘E’.

¹⁴⁷ Maslow also argues that “the id, the ego, and the superego are collaborative and synergetic” in self-actualised individuals.

¹⁴⁸ Outlined in section 2.

In the theoretical framework for the RPQ confidence in the ego generates optimism – optimism that looks to a lesser degree at any hurdles that the individual might need to jump over - because it is a regressive force, and it is pushing the individual downhill. By moving the individual down the hill, confidence breeds ignorance. On the other hand, confidence and patience in the ‘*E*’ breeds understanding and talent¹⁴⁹.

¹⁴⁹ Talent is a “lengthy patience” – Guy de Maupassant

4.0 Risk Personality Questionnaire (RPQ)

4.1 What does the RPQ test?

The RPQ aims to quantitatively differentiate individuals according to the extent to which they have reached their *psychological potential*. An individual who has reached a higher level of their *psychological potential* is considered to have a greater and an improved psychological capacity for good risk taking and risk management, all else being equal.¹⁵⁰¹⁵¹

The RPQ also aims to quantitatively measure other factors which are considered to contribute to the extent to which an individual has reached their *psychological potential*.

4.1.1 The ‘Potentiality-Coefficient’

The RPQ enables the calculation of an individual’s ‘*Potentiality-Coefficient*’. The *Potentiality-Coefficient* is a quantitative measure of the extent to which an individual has reached their *psychological potential*.

4.1.2 Other Coefficients

The RPQ also enables the calculation of other quantitative measures that relate to the degree to which an individual has reached their *psychological potential*.

The ‘*E-Coefficient*’ is a quantitative measure of the extent to which the individual is using and facilitating access to the full potential of their own thought.

The ‘*Go-Coefficient*’ is a quantitative measure of the extent to which the individual is using and facilitating access to the full potential of their logical and rational thinking.

The ‘*Prudence-Coefficient*’ is a quantitative measure of the extent to which an individual takes a ‘*merely prudent*’ psychological approach rather than a ‘*superiorly prudent*’ psychological approach.¹⁵²

The ‘*FAKT-Coefficient*’ is a quantitative measure of the extent to which an individual is prone to the heuristics and biases of the field of behavioural finance.

¹⁵⁰ When assessing an individual’s risk taking and risk management ability other factors such as education, training, professional qualifications, experience, work ethic etc. should also be considered.

¹⁵¹ The individual may have a greater and an improved psychological capacity for many other things too.

¹⁵² See section 3.4.5 for an explanation of ‘mere prudence’ and ‘superior prudence’

4.2 Construction of the RPQ

In the theoretical framework for the RPQ, different psychological viewpoints are considered to be related to the extent to which an individual has reached higher levels of their *psychological potential*. Answers to each question in the RPQ are pitched to appeal to individuals who have varying degrees of these viewpoints in order to differentiate the individuals.¹⁵³

The design of the questions makes use of one of the primary functions of the ego - to act as a defence mechanism. The ego is tasked with enabling an individual to continue to feel good about him or herself. The ego aims to validate the individual's behaviour to themselves – by using various 'ego defences'. Reaching different levels of *psychological potential* is considered likely to lead to different 'ego defences' – which are then considered to be of use in differentiating individuals.

In each question, different answers are pitched to appeal to these different ego defences in order to differentiate the individuals by the degree to which they have reached their *psychological potential*. An individual is usually largely unaware of their ego defence process (or it would not work so well). They will not want to invalidate their ego defence – or they are likely to experience ego injury. Thus it makes it difficult for the individual not to choose the answer most linked to their ego defence. Consequently it is difficult for the individual to game the questionnaire. Effectively the questionnaire tries to cleverly use the questionnaire taker's ego against itself¹⁵⁴.

The methodology for constructing the RPQ was as follows:

- Choosing an attribute or viewpoint that is likely to be consistent with an individual who has reached their *psychological potential* (based on the theoretical framework outlined in section 3)¹⁵⁵. The attribute or viewpoint needs to be one that is not widely held – or that where it is widely held, it is often dominated by other viewpoints, and it might be considered to have potential to differentiate individuals.
- Designing and crafting a question which indirectly asks the questionnaire taker whether they have the attribute or viewpoint. Answers are designed to appeal to individuals who have varying degrees of these viewpoints in order to differentiate the individuals.
- The RPQ requires the questionnaire taker to be honest by necessitating the questionnaire taker to tick a box containing an honesty declaration¹⁵⁶. However, in order to protect against gaming of the questionnaire, numerous other anti-gaming techniques are used.

¹⁵³ Two examples are given in section 4.4

¹⁵⁴ Making use of similar methods to those used by L'Oreal in its marketing – as outlined in section 3.4.9

¹⁵⁵ Typically the attribute or viewpoint is one advocated by one of the classical authors whose ideas are set out in section 3.4

¹⁵⁶ The use of an honesty declaration is based on research carried out by Dan Ariely described in his book '*Predictably Irrational*'.

- The main anti-gaming technique is that the answers to each question are designed to appeal the ego defence mechanisms likely to be associated with the varying degrees to which the individual has the attribute or viewpoint in question. Effectively the questions are designed to use the ego's defence mechanisms against itself. These ego defence mechanisms are considered to be used by these individuals to avoid any ego upset or injury. Not choosing the answer corresponding to the ego defence mechanism would invalidate the defence mechanism, and risk creating the ego upset or ego injury that the defence mechanism was designed to protect against. Consequently, the questionnaire taker should find it difficult not to pick the answer corresponding to its ego defence or it is likely to experience the ego injury that the ego defence was deployed to prevent.
- The second major anti-gaming technique is that answers are designed to appear socially and politically correct and if possible socially or politically admirable - thereby using the constraints of social pietas and/or any associated group ego defence mechanisms against the questionnaire taker.
- Despite these anti-gaming techniques, gaming will always be possible to some degree or another.
- The crafting of each question typically involved about 6-7 iterations to produce a balanced set of answers that is likely to have broad appeal – and answers where the answer response was likely to be balanced between the ‘best’ answer, which corresponds to the chosen attribute or viewpoint, and the ‘worst’ answer.
- In summary, each question is designed with an aim to make the ‘best’ answer seem as unattractive as possible, and the other answers as attractive as possible and to ‘nudge’ the questionnaire taker in the direction of these other answers.

4.2.1 Focus Groups and Guinea Pigging of Draft Version of the RPQ

The crafting of the questions was aided by feedback from two focus groups - one consisted of eight individuals and another consisted of four (different) individuals. In the focus groups, the individuals were asked to choose answers from a sample of questions in the RPQ. After answering one of the sample questions, the meaning of each answer was explained to the members of the focus group and their opinions were sought as to whether the question was likely to be effective in achieving its aim. Any issues raised were used to improve the crafting of the answers.

The original draft version of RPQ contained approximately 100 questions. It took about 1.5 hours to complete. It was guinea-pigged by 37 individuals. Based on the results, a subset of the questions was chosen to produce the final version of the RPQ¹⁵⁷. The final questions were chosen based on the degree to which they were adequately differentiating individuals¹⁵⁸ and the degree to which they were achieving a sufficient balance of answers. In other words, the 100 original questions worked well in theory, but only those showing evidence that they worked in practice were chosen for the final RPQ.

4.2.2 Scoring Methodology in the RPQ

For each question in the RPQ, each answer is ranked according to the degree to which it is considered to indicate that an individual has reached their *psychological potential*. The highest ranking answer in a question gets a score of 3 and the lowest ranking answer gets a score of 0. Middle ranking answers get a score 1 or 2 depending on rank. Leaving a question blank gets a score of 0.5.

The RPQ is split into three sections: section A contains 20 questions; section B contains 20 questions; and section C contains 9 questions. The *Potentiality-Coefficient* is calculated as the sum of the scores from sections A and B, the *E-Coefficient* as the sum of the scores from section A, the *Go-Coefficient* as the sum of the scores from section B, the *FAKT-Coefficient* as the sum of the scores from section C. The *Prudence-Coefficient* is calculated as the sum of the prudence-scores from questions in sections A and B which are considered to have a ‘merely prudent’ option – an answer gets a prudence-score of ‘1’ if it is considered to be a merely prudent answer, and ‘0’ otherwise.

4.2.3 The FAKT-Test

As part of the process of producing the RPQ, this research has used the existing theory in behavioural finance to produce a new test which is designed to determine the extent to which individuals are prone to heuristics and biases. This test is called the *FAKT-Test*, named after Frederick, Allais, Kahneman and Tversky. This test is made up of questions similar to the Cognitive Reflection Test of Frederick, questions related to Allais’ Paradox and questions taken from the research of Kahneman and Tversky. These questions are constructed according to the methodology set out in section 4.2.¹⁵⁹

¹⁵⁷ This was partly to reduce the time needed to answer the questionnaire.

¹⁵⁸ In other words, not all individuals were choosing the same answer.

¹⁵⁹ A sample question is given on the next page.

The purpose of the *FAKT-Test* is twofold, firstly to measure the extent to which an individual is prone to heuristics and biases, and secondly, to test the validity of the RPQ. The output from the *FAKT-Test* is the *FAKT-Coefficient*, which is a quantitative measure of the extent to which an individual is prone to the heuristics and biases of the field of behavioural finance. The RPQ measures the extent to which an individual is operating close to their *psychological potential*. Individuals operating closer to their *psychological potentials* are considered to have greater and improved psychological capacity for risk taking and risk management. Therefore these individuals should be less prone to heuristics and biases and they should score higher on the *FAKT-Test*. This is discussed further in section 6. A sample question from the test is outlined below

Sample 'FAKT-Test' Question:

If it takes 7 machines, 7 minutes to make 7 widgets, how long would it take 50 machines to make 50 widgets?

- 50 minutes
- 7 minutes

Using heuristics an individual might choose answer one. An individual, who is less prone to using heuristics, might give greater consideration to the question, and choose the correct answer (answer two). Answer two gets a score of 3 and answer one gets a score of 0. The score contributes to the individual's *FAKT-Coefficient*.

4.3 Operation of the RPQ

The questionnaire takes about 30-40 minutes to complete.

The RPQ exists as a Google Forms file. It can be emailed direct to the questionnaire taker or a link can be emailed or given to the questionnaire taker for them to access and answer the questionnaire. After completing the questionnaire (hitting the 'submit' button at the end of the questionnaire), the questionnaire taker's responses are automatically entered in a response spreadsheet in Google Forms.¹⁶⁰

An excel spreadsheet, available with the instruction manual for the RPQ, is used to calculate the individual's *Potentiality-Coefficient*, *E-Coefficient*, *Go-Coefficient*, *FAKT-Coefficient* and their *Prudence-Coefficient*.

Individual answers are assessed using the instructions in the instruction manual to highlight strengths, weaknesses and suggestions for improvement. The communication of these to the questionnaire taker involves attaching a number of caveats. The manuals for the questionnaires also contain a template for the feedback report.

¹⁶⁰ This is not accessible to the questionnaire taker.

4.4 Sample Questions from the RPQ

This section outlines two sample questions from the RPQ:

4.4.1 Sample Question One

Question – Which do you most agree with?

- *I think contemplation and deliberation are important.*
- *Too much thinking can lead to procrastination.*

This question is testing the extent to which an individual is using and facilitating access to the full potential of their own thought, their ‘E’. There is broad agreement among classical authors on the merits of contemplation and deliberation¹⁶¹. Contemplation and deliberation essentially involve using and facilitating access to an individual’s ‘E’.

In his famous funeral oration, Pericles said that the Athenians “*are capable at the same time of taking risks and of estimating them beforehand. Others are brave out of ignorance; and, when they stop to think, they begin to fear*”. This question is pitching the second answer at the latter group. Such individuals probably do not sufficiently use and facilitate access to their ‘E’ – typically because of ego defence mechanisms arising from previously ‘drinking shallowly’ from their ‘E’, and from getting ‘intoxicated’ from doing so, which then became detrimental to their subsequent action taken, and consequently they consider the experience to have been harmful and one not to be repeated¹⁶². Furthermore, the question associates contemplation and deliberation with the word ‘procrastination’ – which is considered to be a socially acceptable word used for accessing the ‘E’ amongst unhealthy group egos.

In summary, the question is using an ego defence mechanism and a possible group ego defence mechanism against the individual who is probably not using and facilitating access to their ‘E’. The individual who is using and accessing their ‘E’ should choose answer one, and have a sufficiently degree of progressive force to offset the psychological influences inherent in answer two.

¹⁶¹ E.g. “*what we plant in the soil of contemplation, we shall reap in the harvest of action*” - Meister Eckhart

¹⁶² “*A little learning is a dang'rous thing; drink deep, or taste not the Pierian spring [where the muses reside]: there shallow draughts intoxicate the brain, and drinking largely sobers us again*” – Alexander Pope

4.4.2 Sample Question Two

Question – *Which statement do you agree with most? (Honestly)*

- *There is no freedom without responsibility.*
- *I accept my responsibilities prudently.*
- *It'd be great to have a few less responsibilities so that I could enjoy life more.*
- *I'd love to win the Lotto and be completely free.*

This question is testing the degree to which an individual is using and facilitating access to the full potential of their logical and rational thinking, their ‘Go’. In the theoretical framework for the RPQ, being responsible is considered to be part of *enkrateia*. Being responsible helps an individual to overcome other competing ego desires that they might have in order to aid adequate assessment and management of risk.

This question uses the viewpoint of John S. Mill that “*there is no freedom without responsibility*”. This viewpoint is consistent with the views of many of the classical authors mentioned in section 3.3 and 3.4. For example, Saint-Exupery said that “*I find in the quality of my constraints, the quality of my freedom*”. The question is aiming to test the extent to which an individual holds this viewpoint – setting it against less responsible viewpoints.

The idea for the question was chosen as it was considered to be a viewpoint that is not widely held – or that where it is held, it is often dominated by other viewpoints. Consequently, it was considered to have potential to differentiate individuals.

The design aims to make the first answer seem less attractive. It is set as the extreme¹⁶³ and the most unpleasant viewpoint of the four answers available. This is to nudge relatively responsible individuals to choose answer two – which regards responsibility with a lower degree of importance than answer one. The question is also designed to make answers two, three and four more attractive than answer one. Answers two, three and four are set out in a socially acceptable or even socially admirable tone with the aim to make each easy to choose. These answers are set out in an order that increasingly tempts the individual with more pleasant viewpoints. The question also aims to appeal to the optimism of the individual’s logical and rational thinking. Such optimism is often regarded as socially admirable and the question uses this to attract the individual to the later answers. “Honestly” is inserted in the question to encourage this and answer two, three and four include the word “I” to encourage ego attachment.

¹⁶³ Answer one is not an extreme view. The extreme view in relation to responsibility would be taking unnecessary responsibility – which is considered to be the characteristic of a neurotic. The opposite extreme is somebody who fails to accept their responsibilities adequately – which is considered to result in varying degrees of ‘character disorder’ (This is based on the thought of Fromm and Peck).

Individuals who have reached higher levels of their *psychological potential* are considered to demonstrate pessimism of the intellect, not optimism of the intellect. Pessimism of the intellect is increasingly inconsistent with answers two, three and four. These individuals would be more likely to see potential problems arising, not in a depressive manner, but a manner where it is necessary to deal with the problems in order to maintain the quality of their freedom.

Individuals who choose answer two, three or four could be regarded to have a decreasing understanding of the benefits of responsibility and instead, misguidedly think to different degrees that freedom can exist without responsibility – and most likely because they are using one of answers two, three or four as an ego defence mechanism, in other words, as their excuse for not being fully responsible and consequently they are probably operating at a lower level of *psychological potential*.

The range of answers is designed to cover a wide spectrum of *psychological potential* and to be able to differentiate between individuals operating at significantly different potentials. It is also designed so that the balance of responses will be such that the average score for the question would be about 1.5.¹⁶⁴

4.4.3 Assumptions

The questions in the RPQ assume that the individual knows him or herself. This would not hold if an individual, with a very strong work ethic, chose answer four in sample question two above - that they would like to win the lotto and be completely free. When, in fact, they would likely want to continue to work even if they did win the lottery. The RPQ also assumes honesty and that questionnaire takers took care when answering.

Furthermore, a psychological questionnaire, like the RPQ, is essentially an objective and standardised measure of a sample of behaviour. Psychological questionnaires are like tests in any other science, insofar as observations are made on a small but carefully chosen sample of behaviour. Because they are based on samples they are imperfect tools. Although statistically tested for reliability and validity, there is still a probability, albeit low, of inaccurate output.¹⁶⁵

¹⁶⁴ The design of the RPQ seems to have been successful in this regard. The average Potentiality-Coefficient of those who have answered the questionnaire to date is approximately 62 from the 40 questions which contribute to it. The maximum possible Potentiality-Coefficient is 120 and the minimum is 0. This makes the average score to be 1.54

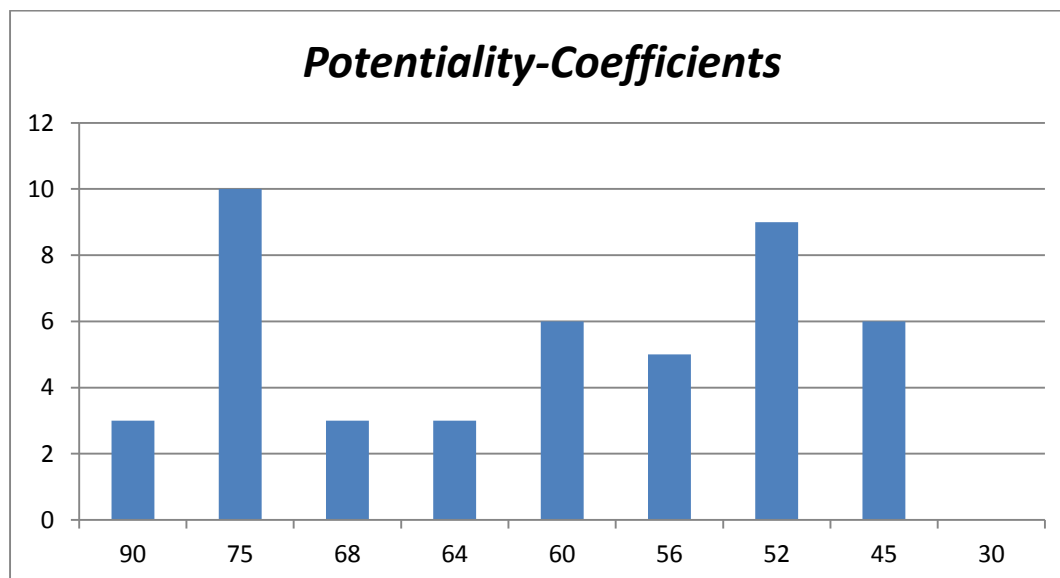
¹⁶⁵ The reliability and validity testing is outlined in section 6.

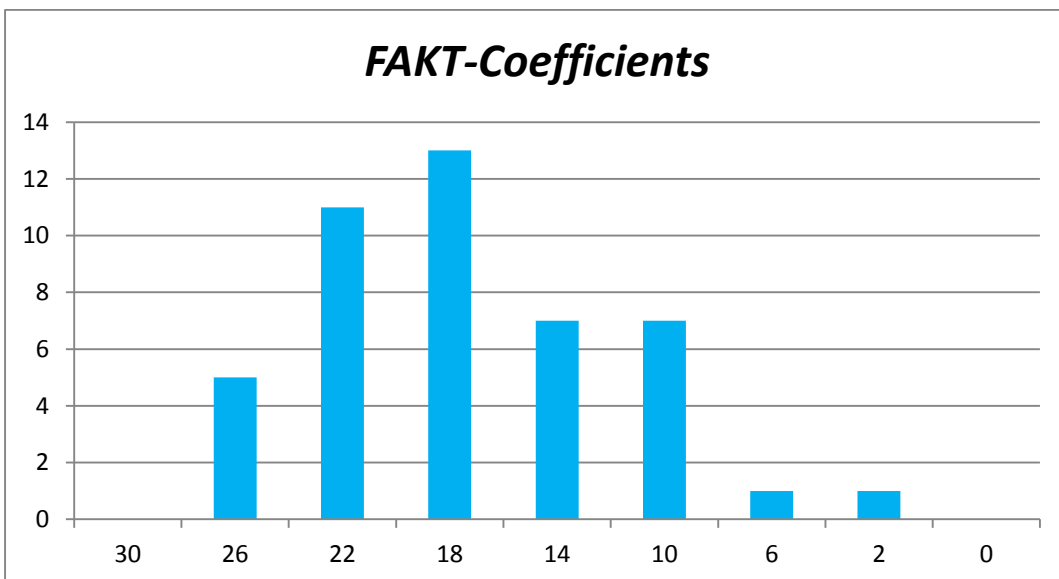
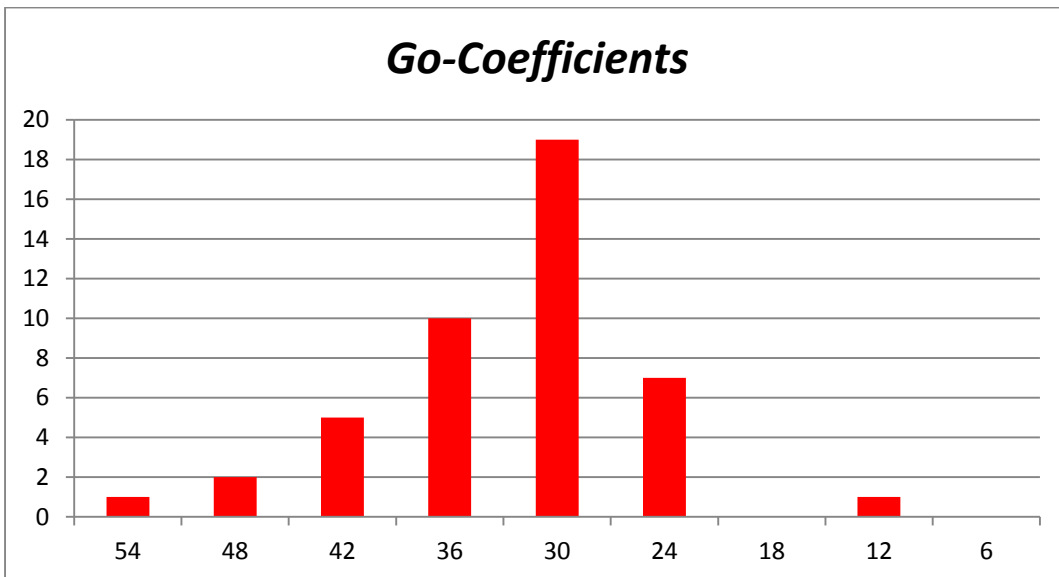
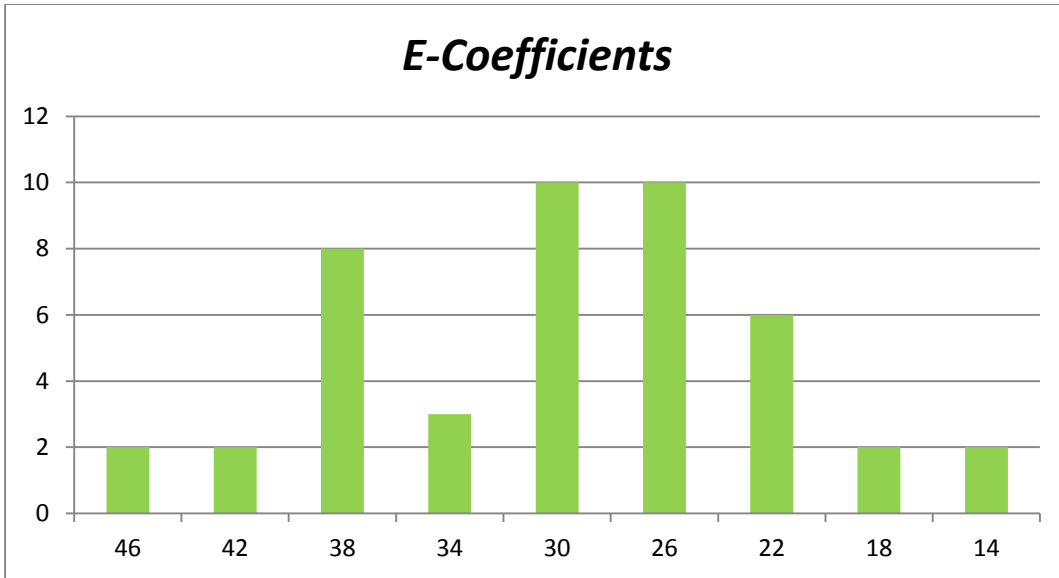
4.5. Summary Statistics from the Guinea-Pigging of the RPQ

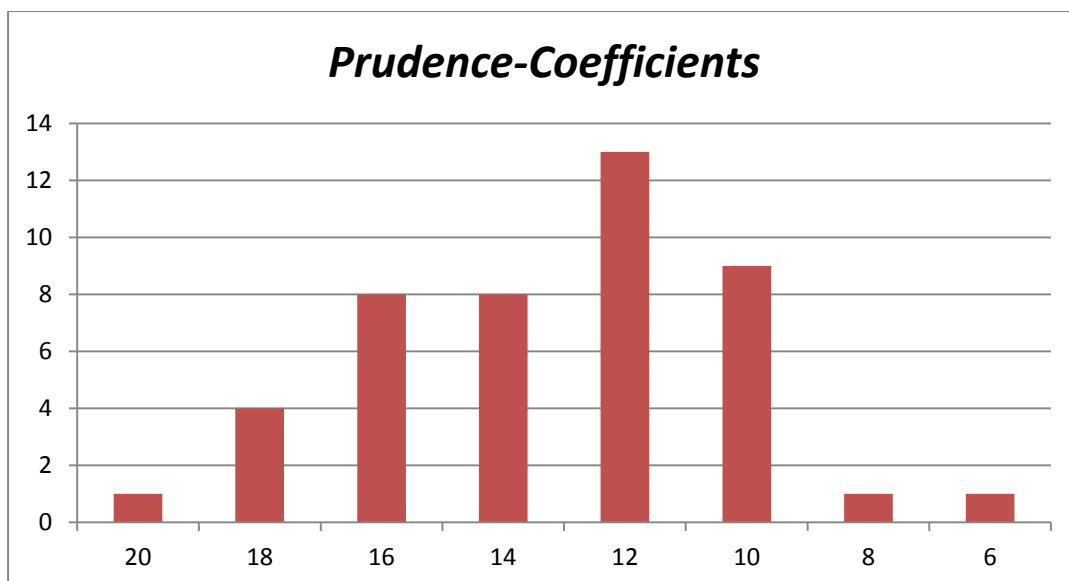
45 individuals volunteered to guinea-pig the RPQ. All of the above mentioned coefficients were calculated for each individual. Summary statistics are given below:

| | <i>Potentiality -Coefficient</i> | <i>E- Coefficient</i> | <i>Go- Coefficient</i> | <i>FAKT- Coefficient</i> | <i>Prudence- Coefficient</i> |
|-----------------------------|--------------------------------------|---------------------------|----------------------------|------------------------------|----------------------------------|
| Highest result | 97 | 45 | 52 | 27 | 19 |
| 90 th Percentile | 77.6 | 38.6 | 41 | 23.6 | 16.6 |
| 70 th Percentile | 66 | 34 | 35 | 20 | 14 |
| 50 th Percentile | 58 | 28 | 32 | 18 | 12 |
| 30 th Percentile | 53.1 | 25 | 28.4 | 15 | 11 |
| 10 th Percentile | 49.2 | 20.4 | 23.4 | 9.4 | 10 |
| Lowest result | 40 | 13 | 14 | 3.5 | 5 |
| | | | | | |
| Average | 61.63 | 29.23 | 32.40 | 17.04 | 12.62 |
| | | | | | |
| Max possible | 120 | 60 | 60 | 27 | 26 |
| Min possible | 0 | 0 | 0 | 0 | 0 |

The distributions of the *Potentiality-Coefficients*, the *E-Coefficients*, the *Go-Coefficients*, the *FAKT-Coefficients* and the *Prudence-Coefficients* from the guinea-pigging of the RPQ can be seen in the following graphs:







4.5.1 Characteristics of the Individuals who Guinea-Pigged the RPQ

45 individuals volunteered to guinea-pig the RPQ. The 45 individuals were made up of DCU actuarial students, Student and Fellow members of the Society of Actuaries in Ireland, Fellows of the Institute & Faculty of Actuaries, along with friends, acquaintances, colleagues and former colleagues of the author. 26 of the volunteers were actuaries or actuarial students. The remaining 19 volunteers were mostly well educated professionals: being either, traders, doctors, politicians, composers, IT professionals, teachers, lawyers, economists or mortgage brokers.

The sample is likely to be biased towards individuals who might be considered to be good risk takers due to the fact that they volunteered to take the questionnaire (individuals who might doubt their capacities might be considered less likely to volunteer). The sample also includes individuals with very good investment track records (who performed well in the RPQ, getting high *Potentiality-Coefficients*) – which might account for the skew in the distribution of the *Potentiality-Coefficients* towards those scoring relatively highly. The average *Potentiality-Coefficient* for actuarial volunteers was slightly higher than average (62.7 versus 61.6) and the average *Prudence-Coefficient* for actuarial volunteers indicated that the actuarial volunteers were slightly less ‘merely prudent’ than average (12.4 versus 12.6). The bias in the sample towards those individuals outside the more ‘artistic’ professions might account for the slightly higher average *Go-Coefficient* and slightly lower than average *E-Coefficient*.

It is unlikely that individuals took the RPQ under similar conditions, albeit they were likely to be broadly similar. Given these comments, it is unlikely that the true ‘population’ percentiles for the RPQ are exactly the same as the ‘sample’ percentiles in the table above. Further testing of the RPQ is needed to get closer estimates.

4.6. Output from the RPQ

Output includes the questionnaire taker's coefficient scores: their *Potentiality-Coefficient*, *E-Coefficient*, *Go-Coefficient*, *FAKT-Coefficient* and their *Prudence-Coefficient*. This is accompanied by an explanation of what is meant by each of the coefficients.

The output also includes a comparison of the questionnaire taker's coefficients with the range of coefficient scores outlined in section 4.5 (or any future updated version of these statistics). This is to enable a comparison of the degree to which the questionnaire taker has reached their *psychological potential* relative to other individuals.

This is followed by a comment somewhere in the range between indicating that the individual is reaching their *psychological potential* to a significant extent, or that the individual has significant potential to improve their psychological capacity.

The output highlights any positive aspects from the individual's answers. For example, in 'Sample Question One' in section 4.4.1 ("Which do you most agree with?") suppose the questionnaire taker chose answer one ("I think contemplation and deliberation are important"). It might be considered, quite simply, that they consider that contemplation and deliberation were important. The output highlights to the questionnaire taker that, in this instance, their viewpoint is in alignment with reaching their *psychological potential*.

Negative aspects from the individual's answers are then highlighted. For example, in 'Sample Question Two' in section 4.4.2 ("Which statement do you agree with most? (Honestly)") suppose the questionnaire taker chose answer three ("It'd be great to have a few less responsibilities so that I could enjoy life more"). It might be considered that they have a somewhat distorted view of responsibility. The output highlights to the questionnaire taker that, in this instance, their view is not in alignment with reaching their *psychological potential*.

Finally, the output includes suggestions for improving the degree to which the questionnaire taker is reaching their *psychological potential*. Taking the example above, the output highlights to the questionnaire taker the viewpoint (answer one – that there is no freedom without responsibility) that is considered in greater alignment with reaching their *psychological potential*.

The output might suggest the following course of action:

- 1) Greater self-awareness, i.e. that the individual considers that they would like to have less responsibilities so that they can enjoy life more, but that this is likely to be a form of ego defence mechanism to 'sweeten' but also falsify their perception of life.
- 2) Reflection, consideration and self-examination by the individual of their own conduct – following the advice '*know thyself*'

3) Consideration as to any priority changes that might aid a progressive psychological change in behaviour.¹⁶⁶

These suggestions might be made – along with highlighting the fact that improving *psychological potential* is likely to be an uncomfortable, difficult and slow experience. That's it necessitates as a prerequisite a *desire to change and to improve*, and patience is likely to be a key component.

Further discussion of suggestions to improve the degree to which an individual is reaching their *psychological potential* is outlined in the instruction manual.

In trying to take on board the suggestions for improvement, the following difficulties and problems might be considered to be likely to arise when an individual tries to improve their *psychological potential*. Firstly, they all necessitate psychological change – not just procedural changes, and they are likely to take a considerable period of time. Secondly, additional time and resources are likely to be needed by an individual, e.g. to allow them to begin to learn to have greater patience in their thoughts. Creating additional time and resources is likely to be difficult for most individuals. Consequently applying changes in priorities is likely to be a necessary step. Furthermore, all suggestions are likely to require greater discipline and self-control to actuate the suggestions.

¹⁶⁶ "Everything you now do is something you have chosen to do. Some people don't want to believe that. But if you are over the age of twenty-one, your life is what you're making it. To change your life, you need to change your priorities." John Maxwell

5.0 The Group Risk Personality Questionnaire (Group RPQ)

5.1 Why the Group RPQ is necessary

The Group RPQ aims to assess the degree to which a group might be considered to be greater or less than the sum of the individuals making up the group.

If a group were to jointly take the RPQ, some of the important interaction within a group might be lost, e.g. any dominant influence from a particular member of the group. Furthermore, some of the questions in the RPQ are only designed to be answered by an individual and their underlying logic would not hold up if they were answered by a group¹⁶⁷.

The *Potentiality Coefficient* of a group is unlikely to be the average of the *Potentiality Coefficients* of the individual members of the group because some individuals are likely to have a disproportionate influence on the group. The combined influence of the individuals, including any disproportionate influence from some individuals, will determine the degree of health of the group ego. If individual members with healthy egos have a much greater influence on the group, than any individuals with less healthy egos, then the group ego will be healthier than the average health of the egos of the individual members of the group, and vice versa. If a certain individual is dominant in the group, the degree of health of their ego is likely to have a dominant influence on the degree of health of the group ego.

In assessing the degree of health of a group ego, an additional factor is also likely to be important - the degree to which an individual is inclined to 'participate' in the group. That is, the degree to which an individual is prepared to consider the interests of the group over their own personal interests.¹⁶⁸

5.2 Construction of the Group RPQ

The methodology for constructing the Group RPQ is similar to that used to construct the RPQ. The aim is to create a question which can be answered separately by the individuals in the group and at a later time by the group as a whole. Each question aims to assess the degree to which an individual holds a certain viewpoint which is considered to influence the degree to which they have reached their *psychological potential*. When a similar question is answered by the group it is aiming to assess the degree to which the group is reaching the group's *psychological potential*.

The answers to each question are scored similarly to the RPQ – a score of 3 for the best answer 0 for the worst and 1 or 2 depending of the relative merit of other possible answers.

¹⁶⁷ Albeit some of the questions do work well for groups and these typically form the basis for the Group RPQ.

¹⁶⁸ This reasoning is based on the original Athenian democracy – according to Pericles, in Athens, “*we do not say that a man who takes no interest in politics is a man who minds his own business; we say he has no business here at all*”.

Each individual's *Individual-Potentiality-Coefficient* is calculated by summing their scores over all questions in the Group RPQ. *Individual-Potentiality-Coefficients* are then summed to calculate the *Aggregated-Potentiality-Coefficient* of the group.

The group's *Group-Potentiality-Coefficient* is calculated by summing the scores from its joint answers to all the questions, and multiplying it by the number of members of the group so that it is comparable to the *Aggregated-Potentiality-Coefficient* of the group.

If the group's *Group-Potentiality-Coefficient* is higher/lower than their *Aggregated-Potentiality-Coefficient* then the group might be considered to be greater/less than the sum of its parts. The degree to which the group might be considered to be greater/less than the sum of its parts can be assessed by the difference in magnitude between the *Group-Potentiality-Coefficient* and the *Aggregated-Potentiality-Coefficient*.

5.3 Operation of the Group RPQ

The Group RPQ currently exists as a Word Document file¹⁶⁹. A printed copy of the individual questions is given to each individual, who then submit their answers to the administrator. The questionnaire takes about 10 minutes to complete for each individual. No consulting or discussion of answers between individuals is allowed

Based on the answers given by each individual, the administrator of the Group RPQ uses the instruction manual to calculate each individual's *Individual-Potentiality-Coefficient*, and then sums them to calculate the *Aggregated-Potentiality-Coefficient* of the group.

The individuals are brought together as a group. The administrator of the Group RPQ circulates copies of the group questions to each individual. The group are given 15-20 minutes to discuss and answer each question as a group – and the answers are recorded by the administrator. Based on the answers given by the group, the administrator uses the instruction manual to calculate the group's *Group-Potentiality-Coefficient*. This is then compared to the *Aggregated-Potentiality-Coefficient* to determine the degree to which the group might be considered to be greater or less than the sum of its parts.

The individual and group answers are assessed (similarly to the way the answers are assessed for the RPQ) using the instructions in the instruction manual to highlight strengths, weaknesses and suggestions for improvement. The communication of these to the questionnaire taker involves attaching a number of caveats.

¹⁶⁹ future versions could be created in Google Forms

5.4 Sample Question from the Group RPQ

Two sample questions from the Group RPQ are outlined below:

5.4.1 Group RPQ - Sample Question One

Individual Question

When somebody (external or internal to the Group) is giving a presentation to the Group

- *It is more important to pitch it at your level.*
- *It is more important for you to be required to rise towards the presenter's level.*

Group Question

When somebody (external or internal to the Group) is giving a presentation to the Group

- *It is more important to pitch it at the average level of the Group.*
- *It is more important for individuals in the group to be required to rise towards the presenter's level.*

This question is based on the model of the *human condition* (in section 3.2) and in particular on the viewpoint of Saint-Exupery that “*civilisations are created from what's required of people rather than what's given to them*”. According to the theoretical framework, all else being equal, the group is likely to perform better, the more it is requiring of itself. Requiring it to raise its level of understanding to avoid ‘dumbing down’ of the presentation is likely to be beneficial to the group.

Answer one for both the individual and group questions would score 0 and answer two would score 3.

The question makes use of a likely ego defence mechanism that might be used in the circumstance of the question – that it would be better if other people did more work, rather than if the individual or group did more work.

5.4.2 Group RPQ - Sample Question Two

Individual Question

The group invested a significant amount into a particular investment – albeit less than its peer group. The investment has performed very poorly, losing >50% of its value. Which do you most agree with?

- *The group did well to invest less than their peer group.*
- *The group made a very bad investment.*

Group Question

The group invested a significant amount into a particular investment – albeit less than its peer group. The investment has performed very poorly, losing >50% of its value. Which do you most agree with?

- *The group did well to invest less than their peer group.*
- *The group made a very bad investment.*

This question aims to test the degree of health of the group ego. The group / individuals have made a very poor investment and are given a choice to either see this reality or to see a sweetened reality. Answer one for both the individual and group questions would score 0 and answer two would score 3.

5.5 Output from the Group RPQ

The output from the Group RPQ is the group's *Group-Potentiality-Coefficient* and the group's *Aggregated-Potentiality-Coefficient* along with the breakdown of the latter by individual.

These coefficients can be used to give an indication as to the extent to which the group might be greater or less than the sum of its parts from the perspective of the degree to which the individuals within the group are reaching their *psychological potential* and the degree to which the group is reaching the *psychological potential* of the group.

6.0 Statistical Testing

This section outlines a preliminary statistical analysis, often referred to as a ‘*proof of concept*’, that was carried out to assess the ‘*reliability*’ and ‘*validity*’ of the RPQ.¹⁷⁰¹⁷¹

There are two main types of statistical testing in psychology - *validity testing* and *reliability testing*. For validity testing, it is necessary to show that the questionnaire actually measures what it is supposed to measure. For reliability testing, it is necessary to show if an individual took the questionnaire now, and again at some point in the future, then they should be likely to get a relatively similar score.

To test the validity of the RPQ, the correlation between the *Potentiality-Coefficients* and the *FAKT-Coefficients* was determined.

The *FAKT-Coefficients* were determined from the *FAKT-Test*¹⁷². The *FAKT-Test* was produced as part of the process of producing the RPQ. It used the existing theory in behavioural finance to produce the *FAKT-Test* which is designed to determine the extent to which individuals are prone to heuristics and biases. This test is made up of the *Cognitive Reflection Test* of Frederick, questions related to the Allais Paradox and questions taken from the research of Kahneman and Tversky. The test is named after Frederick, Allais, Kahneman and Tversky. The main purpose of the producing the *FAKT-Test* was to enable the validity of the RPQ to be tested. The output from the *FAKT-Test* is the *FAKT-Coefficient*, which is a quantitative measure of the extent to which an individual is prone to heuristics and biases of the field of behavioural finance.

Individuals with higher *Potentiality-Coefficients* are considered be operating closer to their *psychological potential*, and consequently are considered to have greater and improved psychological capacity for risk taking and risk management. Therefore individuals with higher *Potentiality-Coefficients* should be less prone to heuristics and biases and they should get higher *FAKT-Coefficients*. However, there are differences between the *Potentiality-Coefficient* and the *FAKT-Coefficient*. The *Potentiality-Coefficient* is based on questions with a greater focus on the ‘ego’ and it might be considered to be based on a broader and deeper series of questions than an arguably narrower focus of the *FAKT-Coefficient*. But there should be a significant degree of positive correlation between the two measures – and the testing of the validity of the RPQ is this research based on this correlation.

The validity of the *Prudence-Coefficient* as an indicator of the *Potentiality-Coefficient* was tested by calculating the correlation coefficient between the two measures.

¹⁷⁰ http://en.wikipedia.org/wiki/Proof_of_concept

¹⁷¹ No statistical analysis has been carried out on the Group RPQ.

¹⁷² See section 4.2.3.

The reliability of the RPQ is tested using the ‘*split-half*’ method¹⁷³. This method involves calculating *Potentiality-Coefficients* based on the first half of the questions in the RPQ (or more specifically, questions 1-10 in sections A and B), and based on the second half of the questions in the RPQ (more specifically, questions 11-20 in sections A and B). Sub measures of the *E-Coefficients* and *Go-Coefficients* are also calculated separately in a similar way.¹⁷⁴

Correlation coefficients were calculated between each of the two sub-measures for the *Potentiality-Coefficient*, the *E-Coefficient* and the *Go-Coefficient* to assess the degree of reliability of the measures.

The correlation coefficient between the scores on each question in the RPQ and the respective coefficient to which they contribute were also calculated.

The *Potentiality-Coefficients*, *E-Coefficients*, *Go-Coefficients*, *FAKT-Coefficients*, and *Prudence Coefficients* were calculated for the 45 individuals who guinea-pigged the RPQ. These are given in Appendix A. The sum of the 1st half and 2nd half of the *Potentiality-Coefficients*; the sum of the 1st half and 2nd half of the *E-Coefficients*; and the sum of the 1st half and 2nd half of the *Go-Coefficients* are given in Appendix B.

6.1. Correlation Coefficients

The correlation coefficients, described above, are given below:

| Correlation Coefficient ¹⁷⁵ | Between the |
|---|--|
| 50% (moderate) | <i>Potentiality Coefficients & FAKT-Coefficients</i> |
| 67% (strong) | $\Sigma(1^{\text{st}} \text{ half}) \ \& \ \Sigma(2^{\text{nd}} \text{ half})$ of <i>Potentiality-Coefficients</i> |
| 40% (moderate) | $\Sigma(1^{\text{st}} \text{ half}) \ \& \ \Sigma(2^{\text{nd}} \text{ half})$ of <i>E-Coefficients</i> |
| 73% (strong) | $\Sigma(1^{\text{st}} \text{ half}) \ \& \ \Sigma(2^{\text{nd}} \text{ half})$ of <i>Go-Coefficients</i> |
| (61%) (strong) | <i>Prudence-Coefficients & Potentiality-Coefficients</i> |

6.2. Validity Testing

The correlation coefficient between the *Potentiality-Coefficients* and the *FAKT-Coefficients* was calculated to be 50% indicating a moderately positive correlation between the two measures. This is consistent with theoretical expectations – that there should be a reasonable but not full degree of positive correlation

¹⁷³ Outlined on pg100 of ‘Psychological Testing’ seventh edition by Anastani & Urbina

¹⁷⁴ The calculated data is given in Appendix B

¹⁷⁵ Definitions of moderate and strong correlation coefficients are taken the definitions used by the British Medical Journal <http://www.bmj.com/about-bmj/resources-readers/publications/statistics-square-one/11-correlation-and-regression>

This result suggests that there is a moderate association between the *Potentiality Coefficients* produced by the RPQ and the extent to which an individual is prone to the heuristics and biases described in the field of behavioural finance. This might be regarded as providing some evidence as to the validity of the RPQ.

The correlation coefficient between the *Prudence Coefficient* and the *Potentiality Coefficient* was calculated to be minus 61% indicating a strong negative correlation between the two measures. This might be regarded as providing a reasonably strong degree of evidence of the validity of the *Prudence-Coefficient* (that a greater degree of ‘mere prudence’ is likely to be associated with a lower *Potentiality-Coefficient*).

6.3. Reliability Testing

The correlation coefficient between the sum of the first half of the *Potentiality-Coefficients* and the second half of the *Potentiality-Coefficients* was calculated to be 67% indicating a strong positive correlation between the two measures. This might be regarded as providing a strong degree of evidence as to the reliability of the RPQ.

The correlation coefficient between the sum of the first half of the *E-Coefficients* and the second half of the *E-Coefficients* was calculated to be 40% indicating a moderate positive correlation between the two measures. This might be regarded as providing a moderate degree of evidence as to the reliability of the *E-Coefficient*.

The correlation coefficient between the sum of the first half of the *Go-Coefficients* and the second half of the *Go-Coefficients* was calculated to be 73% indicating a strong positive correlation between the two measures. This might be regarded as providing a strong degree of evidence as to the reliability of the *Go-Coefficient*.

6.4 Conclusions re Statistical Testing

The validity and reliability testing of the RPQ indicates moderate to strong degrees of correlation between the various measures used to carry out the testing. This might be regarded as a ‘proof of concept’ - demonstrating the potential feasibility of the RPQ.

7.0 Suggestions for Further Research

This research covers a number of different fields: psychology, the classics, behavioural finance and risk management. Therefore it necessitates communicating to individuals who have expertise in some of these areas but not in others. The language used in this paper could potentially be improved to aid better communication of the research.

The statistical analysis of the RPQ has a sample size of 45. The conditions under which the 45 samples were collected were unlikely to be uniform. Future data gathered is more likely to be gathered under more uniform conditions. The statistical analysis in this paper could be repeated upon the gathering of more data.

Each question in the RPQ and Group RPQ has undergone a degree of refinement during the design and construction phase. Further refinement could be made based on feedback from questionnaire takers.

Further research could be carried out to investigate other possible methods to deal with any gaming of the questionnaire.

Feedback from future questionnaire takers could be investigated – including the usefulness or otherwise of the suggested remedial actions.

An investigation could be carried out into how the RPQ can be used alongside other methods to assess risk taking and risk management capabilities, e.g. IQ tests and other assessment procedures.

This research could be used as a basis to develop the concepts of ‘*Ego Risk*’ and ‘*Psychological Risk*’ which are defined respectively as the risks arising from the alternative realities of an individual’s ego, and as the risks arising from distortions to rational and logical judgments.

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Appendix A: Coefficient Data

The coefficients of the forty-five individuals who voluntarily took the RPQ are given below:

| <i>Potentiality-Coefficient</i> | <i>E-Coefficient</i> | <i>Go-Coefficient</i> | <i>FAKT-Coefficient</i> | <i>Prudence-Coefficient</i> |
|---------------------------------|----------------------|-----------------------|-------------------------|-----------------------------|
| 70 | 29 | 41 | 17 | 13 |
| 57 | 30 | 27 | 16 | 13 |
| 78 | 34 | 44 | 25 | 9 |
| 61 | 26 | 35 | 18 | 14 |
| 66 | 34 | 32 | 10 | 11 |
| 50 | 23 | 27 | 9 | 12 |
| 66 | 34 | 32 | 9 | 11 |
| 55 | 23 | 32 | 21 | 15 |
| 77 | 36 | 41 | 21 | 12 |
| 60.5 | 29 | 31.5 | 13 | 12 |
| 58 | 28 | 30 | 15 | 15 |
| 63.5 | 31.5 | 32 | 15 | 15 |
| 48.5 | 17 | 31.5 | 3.5 | 11 |
| 65 | 27 | 38 | 19 | 12 |
| 53.5 | 26 | 27.5 | 13 | 18 |
| 71.5 | 41.5 | 30 | 24 | 10 |
| 56.5 | 19.5 | 37 | 19 | 12 |
| 53 | 21 | 32 | 11 | 12 |
| 42 | 28 | 14 | 11 | 12 |
| 52 | 24 | 28 | 22 | 17 |
| 97 | 45 | 52 | 27 | 5 |
| 50 | 25 | 25 | 18 | 16 |
| 93 | 44 | 49 | 23 | 10 |
| 55 | 25 | 30 | 16 | 9 |
| 65 | 38 | 27 | 13 | 10 |
| 81 | 41 | 40 | 15 | 10 |
| 70 | 38 | 32 | 16 | 7 |
| 46 | 23 | 23 | 9 | 15 |
| 40 | 13 | 27 | 20 | 19 |
| 53 | 31 | 22 | 21 | 17 |
| 72 | 36 | 36 | 20 | 13 |
| 58 | 23 | 35 | 16 | 13 |
| 74 | 29 | 45 | 26 | 11 |
| 71.5 | 37 | 34.5 | 23 | 10 |
| 58 | 27 | 31 | 6.5 | 14 |
| 66 | 29 | 37 | 18 | 14 |
| 49 | 25 | 24 | 14 | 15 |
| 60 | 39 | 21 | 18 | 17 |
| 57 | 24 | 33 | 24 | 15 |
| 49.5 | 25 | 24.5 | 10 | 10 |
| 51 | 20 | 31 | 19 | 12 |
| 53 | 15 | 38 | 19 | 11 |
| 79 | 38 | 41 | 23 | 10 |
| 50.5 | 28 | 22.5 | 20 | 16 |
| 71 | 36 | 35 | 21 | 13 |

Appendix B: Reliability Testing Data

The sum of first half of the scores and the second half of the scores contributing to the *Potentiality-Coefficients*, the *E-Coefficients* and the *Go-Coefficients* are given below:

| <i>Potentiality-Coefficient</i> | <i>Potentiality-Coefficient</i> | <i>E-Coefficient</i> | <i>E-Coefficient</i> | <i>Go-Coefficient</i> | <i>Go-Coefficient</i> |
|---------------------------------|---------------------------------|----------------------|----------------------|-----------------------|-----------------------|
| $\Sigma_s(Q1-10)$ | $\Sigma_s(Q11-20)$ | $\Sigma(Q1-10)$ | $\Sigma(Q11-20)$ | $\Sigma(Q1-10)$ | $\Sigma(Q11-20)$ |
| 37 | 33 | 15 | 14 | 22 | 19 |
| 33 | 24 | 17 | 13 | 16 | 11 |
| 45 | 33 | 21 | 13 | 24 | 20 |
| 33 | 28 | 14 | 12 | 19 | 16 |
| 37 | 29 | 20 | 14 | 17 | 15 |
| 23 | 27 | 11 | 12 | 12 | 15 |
| 35 | 31 | 18 | 16 | 17 | 15 |
| 32 | 23 | 16 | 7 | 16 | 16 |
| 45 | 32 | 23 | 13 | 22 | 19 |
| 34.5 | 26 | 19 | 10 | 15.5 | 16 |
| 30 | 28 | 18 | 10 | 12 | 18 |
| 37.5 | 26 | 19.5 | 12 | 18 | 14 |
| 27 | 21.5 | 11 | 6 | 16 | 15.5 |
| 38 | 27 | 18 | 9 | 20 | 18 |
| 27 | 26.5 | 14 | 12 | 13 | 14.5 |
| 41 | 30.5 | 25 | 16.5 | 16 | 14 |
| 32 | 24.5 | 12 | 7.5 | 20 | 17 |
| 25 | 28 | 12 | 9 | 13 | 19 |
| 26 | 16 | 19.5 | 8.5 | 6.5 | 7.5 |
| 27 | 25 | 14 | 10 | 13 | 15 |
| 48 | 49 | 22 | 23 | 26 | 26 |
| 26 | 24 | 12 | 13 | 14 | 11 |
| 45 | 48 | 20 | 24 | 25 | 24 |
| 25 | 30 | 12 | 13 | 13 | 17 |
| 33 | 32 | 20 | 18 | 13 | 14 |
| 40 | 41 | 17 | 24 | 23 | 17 |
| 33 | 37 | 18 | 20 | 15 | 17 |
| 24 | 22 | 12 | 11 | 12 | 11 |
| 24 | 16 | 9 | 4 | 15 | 12 |
| 28 | 25 | 17 | 14 | 11 | 11 |
| 40 | 32 | 23 | 13 | 17 | 19 |
| 28 | 30 | 10 | 13 | 18 | 17 |
| 37 | 37 | 14 | 15 | 23 | 22 |
| 33 | 38.5 | 16 | 21 | 17 | 17.5 |
| 33 | 25 | 14 | 13 | 19 | 12 |
| 37 | 29 | 19 | 10 | 18 | 19 |
| 30 | 19 | 16 | 9 | 14 | 10 |
| 33 | 27 | 22 | 17 | 11 | 10 |
| 30 | 27 | 17 | 7 | 13 | 20 |
| 21.5 | 28 | 9.5 | 15.5 | 12 | 12.5 |
| 23 | 28 | 7 | 13 | 16 | 15 |
| 31 | 22 | 10 | 5 | 21 | 17 |
| 41 | 38 | 20 | 18 | 21 | 20 |
| 30 | 20.5 | 18 | 10 | 12 | 10.5 |
| 39 | 32 | 22 | 14 | 17 | 18 |