Headspace? Investigating the link between mindfulness and positive psychological strengths.

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Acknowledgements
I would like to take this opportunity to greatly acknowledge the support I received throughout the process of completing this piece of work. Particularly those who took the time out to participate in the study, Dr. Gibbons whose support and guidance has been an essential part of this journey. A special thank you is reserved for those closest to me who have had to bear the weight of my absent mindedness, stress and endless distraction throughout this entire process.
This mixed-methods study intended to investigate the link between mindfulness and positive psychological strengths through a correlation to strengthen the theoretical bond between these areas. The study also aimed to assess the ability of online mindfulness training to increase positive psychological strengths through a quasi-experiment. The measures used in the study were the mindful attention and awareness scale, positive and negative affect scale and psychological well being scale. Participants in the study were a self-selecting sample of 105 who completed a correlation study and 21 who completed online mindfulness training. The results found that mindfulness is significantly positively related to positive affect and has a significant negative relationship with negative affect. The results also found that a mindfulness training programme significantly raised levels of positive affect and psychological strengths. The research concluded that mindfulness has a place in the field of positive psychology and online training in mindfulness can be used to offer the benefits of positive psychology to large populations at relatively little cost.

Chapter 1: Introduction

1.1 Overview
This study sits on a verge between a collection of distinct but related trends in psychology today. Positive psychology being a branch of psychology concerned with human strengths and fulfillment, mindfulness a practice with roots in ancient Buddhism and more recently has been given empirical strength in psychological treatments. These areas are further complimented by a further psychological revolution that is the delivery of psychological interventions without direct contact with a therapist.

1.2 Positive Psychology

Positive psychology is an area that on the surface appears a recent phenomenon and certainly is a growing area with an “explosion in research on positive psychology in the first decade of the twenty-first century” (Carr, 2011, p. xiii). However, Seligman (2000, p. 6) discusses elements of positive psychology that have been present since the birth of psychology in his discussion of the three distinct missions of psychology: “curing mental illness, making the lives of all people more productive and fulfilling, and identifying and nurturing high talent.” The direction of psychology post World War II due in large part to necessity of a post-war environment and availability of funding veered towards the pathological view of “curing mental illness” and away from the other two areas.

Humanistic psychology saw a move towards a focus on human strengths with Maslow’s idea of the drive towards “self actualization” (1954) and Roger’s
emphasis on the “actualizing tendency” (e.g. 1951) of people. This “third wave” of psychology was revolutionary at its time and has had a great influence on psychology as a whole as well as paving the way for today’s positive psychology through the change in focus of psychology by highlighting the ability and innate urge of people to reach self-actualisation and fulfillment.

Positive psychology today is “focused on what makes individuals and communities flourish” (Heffernon & Boniwell, 2011 p. 2). There are many major themes through positive psychology, all focused on positive subjective feelings, positive traits and positive societies. Some of these themes include happiness, hope and optimism, flow, courage, perseverance and positive relationships to name but a few.

A key contrast between positive psychology and “traditional” psychology is this focus on strengths contrary to weakness or illness. Where positive psychology is concerned, “treatment is not just fixing what is wrong; it also is building what is right. Psychology is not just about illness or health; it also is about work, education, insight, love, growth, and play” (Seligman, 2002, p. 4). Positive psychological therapies or positive psychology interventions aim to “cultivate positive emotions, build strengths and enhance meaningful relationships” (Carr, 2011, p. 328).

1.3 Mindfulness
Mindfulness is a particular type of meditation that usually has its origins associated with ancient Buddhism and is thought to have been developed over 2,000 years ago. More recently, Mindfulness has developed an association with modern psychology from the pioneering work of John Kabat-Zinn in the 1970s when he developed the Mindfulness Based Stress Reduction (MBSR) approach. Kabat Zinn describes mindfulness simply as “paying attention in a particular way: on purpose, in the present moment, and non-judgementally’ (1994, p. 4).

The MBSR approach to mindfulness training involves delivery of training in a group setting. It usually consists of approximately group sessions lasting two hours and fifteen minutes on a weekly basis over an eight week period, a full day of training as well as forty minutes of “homework” to be completed on a daily basis which include meditation practice, mindful yoga and other exercises designed to encourage participants to practice mindfulness in their day to day lives. The total time investment in this course is in excess of thirty hours. In addition the cost to participate is usually approximately €350 per participant in Ireland in 2014.

Mindfulness has now been established as a beneficial activity in a variety of ways. A meta analysis (Grossman, Niemann, Schmidt & Walach, 2004) of 20 empirical studies on the efficacy of MBSR was conducted covering a range of populations including clinical groups suffering with pain, depression, anxiety and
cancer as well as non clinical groups experiencing stress. This meta analysis found that MBSR specifically is a useful intervention for a broad range of chronic disorders. Other studies have shown the benefit of mindfulness interventions that use elements of MBSR outside clinical populations for example around emotion regulation, emotional exhaustion and job satisfaction in the workplace (Hulsheger, Alberts, Feinholdt & Lang, 2013) and in decreasing stress in a student sample (Vibe et. al., 2013).

Research in to mindfulness training outside the specific MBSR programme is constantly expanding. Research by Cavanagh et. al. (2013) showed that a non-MBSR training programme delivered over the internet could increase levels of mindfulness, and reduce perceived stress and anxiety/depression symptoms in a non-clinical student population. Further to this, Gluck & Maercker (2011, p. 1) asserts that “there is no evidence that shortened versions of mindfulness training are less effective.”

While the benefits of mindfulness are emerging at an almost blinding rate, there is somewhat less known about the actual mechanism through which these are realised. However some proposals have been made. Discuss the concept of “mind wandering,” a subjective experience common to all humans where attention can idly drift from one subject to another without the control of the individual. Mindfulness training acts to stop this mind wandering and Morrison et. al. (2014) suggests that mindfulness practice may actually cause changes to the
brain’s “default mode network” - the state our brains are in while resting, considered a central part of consciousness itself. Morrison et. al. (2014, p. 2) reference studies that the default mode network is “relatively deactivated in long-term practitioners [of mindfulness meditation] during formal meditation practice.”

While the majority of research discussed both here and below focuses on clinical population and the alleviation of disorders and symptoms, mindfulness and meditation as a whole shares a broad vision with positive psychology. Shapiro, Schwartz and Santerre (2002) clearly identify this in their discussion of research in the area. Positive traits and characteristics such as creativity, interpersonal functioning, self-esteem, happiness and positive affect are all seen to benefit from the practice of some form of meditation. They also discuss the idea that meditation links with the humanistic psychology idea of self-actualisation.

Further mindfulness research will be discussed below with specific regard to this study.

1.4 Computer Based Therapy

An exciting and somewhat surprising development in modern psychology in recent years has been to make use of advances in technology. It has long been accepted the the delivery of psychological therapies and interventions depends greatly on the relationship between the therapist and the client. This therapeutic
alliance has been shown to account for “about 38% of the effectiveness of psychotherapy” (Martin et. al., 2000 as cited in Carr, 2012) and is considered an essential element of therapy. However, in recent years a shift appears to be occurring with the onset on therapies that use technology. Specifically computer based cognitive behavioral therapy (cCBT).

This is a hugely expanding area with “97 computer-aided psychotherapy systems from nine countries” available in 2007 (Maks, Cavanagh and Gega, 2007, p. 471). Some cCBT systems have been well documented as being effective therapies in the treatment of mild to moderate depression. For example, Proudfoot et. al. (2004) conducted a randomised controlled trial of one such system which showed a “significant improvement on all levels measured” (2004, p. 51) in a population suffering from mild to moderate depression and/or anxiety.

In addition this form of therapy is being adopted by national health services such as the NHS in the UK which issued implementation guidelines on its use in 2007 (Department of Health, 2007). The development of this type of intervention can have a significant impact on the landscape of psychology and how psychological interventions are delivered.

If implemented correctly these interventions could open up the availability of psychological interventions to all with a greatly reduced cost and increased benefit to society as a whole. However, with the growth in this area as noted above, we must be extremely wary of the interests at play behind these systems
and ensure that they are subject to rigorous scientific analysis to ensure their benefit.

1.5 Relevant Research

Cavanagh et. al. (2013) conducted a randomized controlled trial of a brief online mindfulness training intervention. This research showed positive results for the application of mindfulness even in a conservative analysis where baseline observations were carried forward (BOCF) for participants who had dropped out of the study. The results showed a mild to medium increase in mindfulness (measured on the five-factor mindfulness questionnaire (FFMQ)) and a similar reduction in stress (measured by the perceived stress scale (PSS)) and anxiety and depression symptoms (measured by the patient health questionnaire for depression and anxiety (PHQ-4)). A key finding in this study was a relationship between the improvement in mindfulness and the reduction in stress, depression and anxiety symptoms. Improvements in the mindfulness measure had a strong, negative correlation with stress and anxiety and depression.

It should be noted that the mild to medium effect is very conservative owing to the BOCF technique used in the study. This factor combines with a very high level of attrition (52% of participants in the intervention group completed post-intervention questionnaires). Counting these participants as having no change may underestimate the effect of the intervention on those who completed it as
48% of participants have been counted as not experiencing any change post intervention. With this in mind the potential effect of the intervention may be greater than those gained in the analysis of this study. A problem with this study is that the intervention is not standard to all participants. Participants could complete more or less of the intervention as desired e.g. The programme included a journaling option that participants could choose whether or not to avail of. Further, participants reported the amount of practice that they engaged in and this impacted on the efficacy of the intervention. There is a discrepancy in that 61% of participants practiced mindfulness more than once per week and 26% practiced more than once per day. While this may give an indication of the effect of mindfulness as a whole, it does not control for the specific intervention as participants had the option to engage in additional mindfulness practice and activities.

The Cavanagh et. al. (2013) research shows that a mindfulness intervention delivered exclusively online can have a positive effect on participants. The present research hopes to build on this through an analysis from a more positive perspective, taking measures related to positive psychology where Cavanagh et. al. (2013) remained in the traditional realm of pathological psychology. This research will also be aware of the problem of attrition in this type of study that was raised here and the means of dealing with it without skewing the statistics positively or negatively.
A similar study was carried out by Gluck and Maercker (2011). This was a randomized controlled pilot study of web based mindfulness training that lasted two weeks and ran for twenty minutes each day. The study measured stress (PSQ), mindfulness (Freiburg Mindfulness Inventory (FMI)) and mood and emotional regulation (positive and negative affect scale (PANAS) as well as SEK-27). This study had a much lower rate of attrition than the one discussed above and used multiple imputation to compensate for missing data. An intention to treat analysis showed little improvement in participants. This was non significant. Interestingly, a moderate non-significant decrease in stress was noted. This does not appear to correlate with the small, non-significant increase in mindfulness which appears to contrast somewhat with the findings of Cavanagh et. al. (2013). However, in participants that completed over 50% of the training the statistics showed effective reductions in stress and negative affect and a medium increase in positive affect.

Although this study (Gluck and Maercker, 2011) used a scale that can be linked with positive psychology (PANAS), again there is a focus on the amelioration of negative experiences rather than the development of positive experience. Similar to the study discussed above, there appears here to be a variety of levels of engagement that participants had with the intervention and the researchers themselves state that for future research “a better control of adherence and program use would be advised” (Gluck and Maercker, 2011, p. 10). The present research aims to take this on boards and build in a positive psychology
framework for analysis.

This remains an inconclusive area as in the main, meta-analyses of mindfulness trials are showing great effects on a number of measures in clinical populations in particular but other more recent trials of web based training are less conclusive with differing outcomes (e.g. The difference between Gluck and Maercker (2011) and Cavanagh et. al. (2013) in the effect on ‘mindfulness’ is worth noting, despite similar interventions and different scales being used). Additional research in to online mindfulness training should support the ‘stabilisation’ of these findings and identify the principles upon which successful online mindfulness training programmes can be built.

As discussed above, the MBSR model upon which the majority of current research and interventions are based upon is quite a restrictive and intense programme for some. The heavy involvement of a facilitator who must complete intense training to deliver the programme as well as the provision of specific materials all adds to the cost of this intervention. This heavy investment required in terms of both time and money may prevent the general public and particularly people from lower socio-economic status from accessing the emerging benefits that can be obtained through mindfulness. It is hoped that following on from Gluck’s assertion (2011) that there is no evidence that shorter mindfulness interventions could have similar effects and Cavanagh et. al. (2013) research showing that interventions delivered online can be effective that this study can
continue in this vein to show that a short mindfulness training programme available free of charge online can bring the many proven benefits of mindfulness to the general population.

In addition, the research showing the benefits of mindfulness has much in common with traditional psychological research in its focus on pathology. The studies discussed here generally view mindfulness as a means of alleviating symptoms rather than preventing them. This study aims to bring a positive psychology focus to research on mindfulness, looking at its relationship with positive psychological strengths and looking upon it as a tool to develop strengths rather than ameliorate weaknesses. Meditation has traditionally been seen as a means of achieving wisdom. This research from a positive psychological approach brings with it a fresh look at mindfulness as a life enhancing and illness preventing tool.

1.6 The Current Study

As stated above the aims of this study are to further cement the links between mindfulness and positive psychology as well as to test a freely available mindfulness tool in terms of its ability to enhance positive psychological strengths.

This research involves a quasi-experiment design where participants will
complete questionnaires designed to measure attributes closely linked to positive psychology including psychological well-being, positive and negative affect and mindfulness. Following this, participants will take part in a short online mindfulness training programme. Finally participants will again complete the questionnaire so that the difference can be measured before and after the intervention. There will also be a correlation element to the study where participants will complete scales to measure mindfulness, positive and negative affect as well as psychological well being. The results of the correlation will seek to identify a relationship between mindfulness and positive psychology traits.

The scales that will be used in the study include the mindful attention and awareness scale (MAAS) (Brown & Ryan, 2003), the positive and negative affect scale (PANAS) (Watson, Clark & Tellegen, 1988) to measure positive and negative feelings, an important positive psychology construct. The psychological well being scale developed by Ryff (1989) will be used as a measure of psychological well-being. This scale includes outcome variables relevant to positive psychology such as autonomy, positive relationships, self-acceptance, environmental mastery, purpose in life and personal growth.

It is hoped that this research design will support the ability of a brief, freely available online mindfulness training programme can act as a positive psychological tool to increase levels of psychological well-being, positive and negative affect and mindfulness.
1.7 Hypotheses

Hypothesis 1; There will be a significant, positive correlation between mindfulness and positive affect and a significant negative correlation between mindfulness and negative affect.

Hypothesis 2; There will be a significant positive correlation between mindfulness and psychological well-being.

Hypothesis 3; Participation in a brief online mindfulness training programme will lead to a significant increase levels of mindfulness, positive affect and psychological well being and a significant reduction in negative affect.
Chapter 2: METHOD

2.1 Participants:

This study used a self-selecting sample both for the correlation part of the study and the training group. For the training group, business cards with details of the study requesting that participants e-mail the researcher were circulated on campus in Dublin Business School as well as among staff members of both a homeless charity in Dublin and a radiation therapy department. Information about the study was also posted online to forums dedicated to psychology students. The correlation part of the study was advertised on social media. Permission was sought form the administrators of each page and it was posted on pages based on the subject of positive psychology, mindfulness and psychology students. A total of 105 (n = 105) participants completed the correlation study while 21 (n = 21) took part in the mindfulness training. Exclusion criteria were that participants must be over 18 years of age. All participants were required to actively express consent and were made aware of their right to withdraw from the study at any
time. No incentive was offered for participation. However, some participants may have viewed the mindfulness training that was available free of charge to be an incentive to take part.

Participants in the correlation part of the study were 26 men and 79 women aged 19 to 62 years (M = 33.71, SD = 11.36). For the training, 9 men and 12 women took part aged 22 to 43 (M = 28.95, SD = 5.5). It should be noted that a large proportion of the participants in the training group was made up of psychology students and people working in the caring sector. These participants have all achieved a level of higher education (degree level) and would be financially independent. All participants were computer literate and had access to a computer.

2.2 Design

The research comprised of a mixed methods design including a correlational and quasi experimental methods.

For the correlational research the independent variable (IV) was taken to be mindfulness and the dependent variable (DV) was positive psychological strengths. Positive psychological strengths were measure using the scales of positive and negative affect (PANAS) and psychological well-being (PWB). The predictor variables for the correlation were age, gender and mindfulness as
measured by the mindful attention and awareness (MAAS) scale. The outcome variables attained through the PANAS scale were positive affect and negative affect. Outcome variable from the PWB scale were autonomy, environmental mastery, personal growth, positive relations, purpose in life and self-acceptance.

The quasi-experiment element of the study again had positive psychological strengths as the DV. The IV for this part of the study was participation in an online mindfulness training programme. The quasi-experiment was a repeated measures, within participants design. In this part of the study, positive psychological strengths were measured using the MAAS, PANAS and PWB scales. As noted in the previous paragraph, these scale give outcome measures of mindful attention and awareness, positive affect, negative affect, autonomy, environmental mastery, personal growth, positive relations, purpose in life and self-acceptance. Participants completed these measures before and after taking part in the online mindfulness training programme

2.3 Materials and Apparatus

The materials required for the study included three established psychological scales and an online mindfulness training programme.

The mindful Attention and Awareness (MAAS) scale (Brown & Ryan, 2003) measures mindfulness defined as a receptive awareness of present events and
experience. The measure consists of 15 questions describing experiences that reflect mindfulness awareness such as “I find myself preoccupied with the future or the past.” Participants were asked to indicate to what extent they currently have each experience on a scale from 1 to 6 that included items such as “1 - Almost Always,” “3 - Somewhat frequently,” “5 - Very Infrequently,” “6 - Almost Never.” The internal consistency of this measure assessed by Cronbach’s alpha is .87 (Brown & Ryan, 2003, p. 31). The outcome measure of this scale gives an overall score for mindful attention and awareness through calculating the average from the responses given.

Please see appendix for a copy of this scale and the scoring sheet.

The positive and negative affect scale (PANAS) is a measure of positive and negative affect. For this scale, high negative affect is characterised by high levels of subjective distress and unpleasureable engagement and low negative affect is characterised by low levels of these experiences. Positive affect on the other hand is considered by the scale as representing “the extent to which an individual experiences pleasurable engagement with the environment” (Crawford & Henry, 2004, p. 246). The scale is made up of 20 single words that describe emotions and feelings including items such as “interested,” “distressed,” “inspired” and “nervous.” Participants were asked to indicate the extent to which they felt each of these at the moment they completed the questionnaire using a rating from 1 to 5 that included responses such as “1 – very slightly or not at all,” “3 – moderately” and “5 – extremely.” The outcome measures generated by this
scale were positive affect and negative affect both were calculated through finding the sum of the responses coded for each variable. This scale is considered very reliable. Reliability as measured by Cronbach’s alpha were .89 for positive affect and .85 for negative affect (Crawford & Henry, 2004, p. 262). See appendix for a copy of this scale and scoring sheet.

The psychological well-being (PWB) scale (Ryff, 1989) measures psychological well-being according to the six categories of autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance. Each of these categories is an outcome measure of the scale. The questionnaire consists of 42 statements, each one reflecting an aspect of psychological well-being. For example “I have confidence in my own opinions, even if they are contrary to the general consensus” represents autonomy, “some people wander aimlessly through life, but I am not one of them” represents purpose in life and “I like most aspects of my personality” represents self-acceptance. Participants were asked to indicate their degree of agreement with each phrase along a scale from 1 - “strongly disagree” to 6 - “strongly agree.” This scale has a high level of reliability. Cronbach’s alpha scores for the scale are; .86 for autonomy, .90 for environmental mastery, .87 for personal growth, .91 for positive relations with others, .90 for purpose and life and .93 for self-acceptance. See appendix for a copy of this scale and scoring sheet.
The mindfulness training programme used in the study is a freely available tool called “Take 10” that can be accessed free of charge via the website www.getsomeheadspace.com. Participants were required to have access to a device on which they could access this material (e.g. Computer, smartphone or tablet device with audio capability).

2.4 Procedure:

Participants in the correlation part of the study were recruited through messages such as “I am looking for participants for a short study investigating the relationship between mindfulness and positive psychology as a part of a higher diploma in Psychology that I am studying in Dublin Business School (This project has been approved by the DBS ethics committee). Participation should take no longer than 10 minutes.” These messages also contained a link to an online questionnaire. The questionnaire consisted of a front page with information about the study including contact details for the researcher and the supervisor, ethical information including their confidentiality and right to withdraw from the study and a box that each participant was required to check to express their consent to participate in the study. Following this, participants completed online versions of MAAS, PANAS and the PWB scale before a final screen thanking participants for giving their time and listing support services should any of them experienced any distress as a result of taking part. The information from the front page and the final screen is attached in appendix (*).
For the mindfulness training programme, participants were required to e-mail the researcher to indicate their interest in taking part. The researcher replied with a link to an online survey. Again, the front page of the survey detailed the study, contact details of the researcher and supervisor as well as ethical information including confidentiality and right to withdraw from the study. Participants entered their date of birth, which was used to link pre and post intervention responses, as well as gender and ticked a box to express consent to participate. This was followed by the MAAS, PANAS and PWB scales. The final page thanked participants for completing the questionnaires and directed them to the website containing the mindfulness training programme. This page also and offered the contact details of organisations that could provide support in the event that participation in the study caused any distress. Participants were required to create an account on the website containing the mindfulness training programme to access the “Take 10” programme. Participants listened to and followed the instructions contained in recordings of guided meditation sessions, each one 10 minutes in length once a day for 10 days. The recordings were made available to participants as they progressed through the programme e.g. “day 2” was available the day after “day 1 was completed. The programme sent an automatically generated e-mail to participants to notify them when the next session was ready.

After 10 days, the researcher contacted each participant via e-mail to request
that they complete another online questionnaire. This again described ethical information such as the right to withdraw participation and confidentiality as well as contact details of the researcher and supervisor. Followed by this were the MAAS, PANAS and PWB questionnaires and finally a page to thank participants and offer the contact details of organisations that could provide support in the event that participation in the study caused any distress.
Chapter 3: Results

3.1 Introduction
This section will look at the results from the correlation part of the study and the quasi-experiment separately. All data was statistically analysed using the Statistical Package for the Social Sciences (SPSS) software for Mac (Version 20). For both sets of data, descriptive statistics were obtained to identify the demographical background of participants such as age, gender, and baseline levels of other predictor variables such as mindfulness. For the correlation study, an independent samples t-test was used to explore the differences between groups that participated in the study (male and female). Pearson’s r correlations were then performed to identify relationships between predictor variables of age and MAAS and outcome variables. Following this, multiple regressions were carried out to further explore the relationship where significant correlations were discovered. For the quasi-experiment part of the study, after descriptive statistics were obtained, paired samples t-tests were carried out to analyse the difference in the mean scores before and after participation in the mindfulness training.

3.2 Correlation Study

3.2.1 Descriptive Statistics
There were 105 participants in this part of the study including 26 males (25%) and 79 females (75%). Age of participants ranged from 19 years to 62 years with a mean age (M) of 33.71 and a standard deviation (SD) of 11.363. Of the 105 participants, there were 90 (n = 90) valid responses in the calculation of MASS. The mean score for this was 3.75 with a range of 4 from 1.67 (minimum) to 5.67 (maximum). The standard deviation for this measure was 0.78.

Table 1 provides descriptives for the outcome variables in the correlation study. The total number of participants, maximum and minimum scores, mean and standard deviation are listed for each of the outcome variables from the PANAS and PWB scales.

### 3.2.2 Inferential Statistics and main findings

A Pearson’s correlation was carried out to investigate the relationship between mindfulness and positive psychology strengths. The score from MAAS was correlated with the outcome variables from PANAS and PWB scales. Significant correlations were found with positive affect, negative affect and environmental mastery. The mean score for MAAS was as noted above was 3.75 and mean scores as noted in Table 1 were 28.68 for positive affect, 15.72 for negative affect and 24.97 for environmental mastery. A weak, positive significant relationship was found between mindfulness and positive affect ($r (90) = 0.28$, $p < 0.01$). There was a weak negative significant relationship between mindfulness
and negative affect ($r (90) = -0.26, p < 0.05$). There was also a weak negative significant relationship between mindfulness and environmental mastery ($r (89) = -0.23, p < 0.05$).

A multiple regression also tested the extent to which positive affect, negative affect and environmental mastery related to mindfulness. The results of the regression indicated that these three predictors indicated 17% of the variance ($R^2 = .17$, $F(3, 85) = 7.07, p < .001$). It was found that negative affect significantly related to mindfulness ($\beta = -.28, p = .007, CI = -.06 - -.01$) as did positive affect ($\beta = .318, p = .002, CI = .01 - .05$) but environmental mastery did not. In this sample, as mindfulness increased, negative affect decreased and positive affect increased.

Table 1; Correlation Outcome Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Affect</td>
<td>90</td>
<td>12</td>
<td>47</td>
<td>28.68</td>
<td>7.30</td>
</tr>
</tbody>
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Student number; 1735478
### 3.2.3 Additional Findings

A Pearson’s correlation coefficient was carried out to investigate the relationship between age and all of the outcome variables. Significant correlations were found with negative affect, personal growth and purpose in life. The mean age as noted

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<tbody>
<tr>
<td><strong>total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Affect</td>
<td>90</td>
<td>10</td>
<td>37</td>
<td>15.72</td>
<td>6.35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy (PWB)</td>
<td>89</td>
<td>17</td>
<td>33</td>
<td>26.54</td>
<td>2.96</td>
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<tr>
<td>Environmental Mastery (PWB)</td>
<td>89</td>
<td>15</td>
<td>33</td>
<td>24.97</td>
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<tr>
<td>Personal Growth (PWB)</td>
<td>89</td>
<td>15</td>
<td>32</td>
<td>23.83</td>
<td>3.12</td>
</tr>
<tr>
<td>Positive Relations (PWB)</td>
<td>89</td>
<td>20</td>
<td>40</td>
<td>27.34</td>
<td>3.67</td>
</tr>
<tr>
<td>Purpose in Life (PWB)</td>
<td>89</td>
<td>16</td>
<td>32</td>
<td>23.28</td>
<td>2.93</td>
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<td>Self-Acceptance (PWB)</td>
<td>89</td>
<td>18</td>
<td>33</td>
<td>24.99</td>
<td>2.89</td>
</tr>
</tbody>
</table>
above was 33.71 and the mean scores as noted in Table 1 were 15.72 for negative affect, 23.83 for personal growth and 23.28 for purpose in life. There was a weak, negative significant relationship between age and negative affect (r (90) = -0.21, p < 0.05). There was a moderate positive significant relationship between age and personal growth (r (89) = 0.32, p < 0.01). A moderate positive significant relationship was also found between age and purpose in life (r (89) = 0.33, p < 0.01). All other outcome variables in the study did not have a significant relationship with age.

The findings of these correlations were further examined through multiple regression analysis. Multiple regression was used to test the extent to which purpose in life, negative affect and personal growth related to age. The results of the regression indicated that three predictors explained 23% of the variance (R2 = .23, F(3, 85) = 9.57, p < 0.001). It was found that negative affect significantly related to age (β = .57, p = .002, 95%, CI = -.92 - -.22) as did personal growth (β = 1.22, p = .002, CI = .46 - 1.98) and purpose in life (β = 1.01, p = .012, CI = .23 - 1.8).*

An independent samples t-test was used to identify any significant difference between male and female participants in the study. No significant difference was found between these groups.

3.3 Quasi-Experiment
3.3.1 Descriptive Statistics

21 participants took part in this part of the study which included 9 (43%) males and 12 (57%) females. The age of these participants ranged from 22 to 43 with a mean (M) of 28.95 years and a standard deviation (SD) of 5.47.

Table 2 shows the scores of participants of the scales of PANAS, MAAS and PWB before their participation in the mindfulness training programme. Table 3 shows the scores of participants on these three scales after the mindfulness training. Both tables show the number of participants that provided a valid response for each measure, minimum and maximum scores, mean and standard deviation for each variable.

Table 2; Scores on PANAS, PWB and MAAS scales before mindfulness training

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Affect total (PANAS)</td>
<td>21</td>
<td>20</td>
<td>50</td>
<td>32.81</td>
<td>7.39</td>
</tr>
<tr>
<td>Negative Affect total (PANAS)</td>
<td>21</td>
<td>15</td>
<td>50</td>
<td>31.14</td>
<td>8.64</td>
</tr>
<tr>
<td>Autonomy</td>
<td>21</td>
<td>18</td>
<td>29</td>
<td>24.38</td>
<td>2.66</td>
</tr>
</tbody>
</table>

Student number; 1735478
<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Mastery (PWB)</td>
<td>24.43</td>
<td>2.46</td>
</tr>
<tr>
<td>Personal Growth (PWB)</td>
<td>25.76</td>
<td>3.06</td>
</tr>
<tr>
<td>Positive Relations (PWB)</td>
<td>24.62</td>
<td>1.75</td>
</tr>
<tr>
<td>Purpose in Life (PWB)</td>
<td>24.86</td>
<td>2.41</td>
</tr>
<tr>
<td>Self-Acceptance (PWB)</td>
<td>25.57</td>
<td>2.73</td>
</tr>
<tr>
<td>Mindfulness (MAAS)</td>
<td>3.24</td>
<td>0.76</td>
</tr>
<tr>
<td>Variable</td>
<td>N</td>
<td>Minimum</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----</td>
<td>---------</td>
</tr>
<tr>
<td>Positive Affect total (PANAS)</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>Negative Affect total (PANAS)</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>Autonomy (PWB)</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Environmental Mastery (PWB)</td>
<td>21</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 3; *Scores on PANAS, PWB and MAAS scales after mindfulness training*
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Growth (PWB)</strong></td>
<td>31.19</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Positive Relations (PWB)</strong></td>
<td>30.67</td>
<td>4.28</td>
</tr>
<tr>
<td><strong>Purpose in Life (PWB)</strong></td>
<td>28.62</td>
<td>3.98</td>
</tr>
<tr>
<td><strong>Self-Acceptance (PWB)</strong></td>
<td>30.71</td>
<td>3.73</td>
</tr>
<tr>
<td><strong>Mindfulness (MAAS)</strong></td>
<td>3.73</td>
<td>0.44</td>
</tr>
</tbody>
</table>

### 3.2.2 Inferential Statistics

The mean score for Mindfulness (MAAS) before the training was 3.24 (SD = .76), after the training the mean was slightly higher at 3.73 (SD = .44). The 95% confidence interval shows that the population mean difference of the variables lies somewhere between -.73 and -.26. These mean scores differed and a paired sample t-test showed that there was a significant difference between mindfulness levels before and after the training ($t(20) = -4.34$, $p < .001$).

For the PANAS scale, mean scores were 32.81 for positive affect (SD = 7.39) and 31.14 for negative affect (SD = 8.64) before the mindfulness training. The mean scores after training were 35.33 (SD = 4.26) for positive affect and 24.38
(SD = 5.59) for negative affect. The 95% confidence interval shows that the population mean difference of the variables lies somewhere between -5.65 and .61 for positive affect and between 3.80 and 9.73 for negative affect. The mean scores for both variables differed before and after the intervention. A paired samples t-test showed that there was no significant difference in positive affect (t(20) = -1.68, p > .05). A paired samples t-test showed a significant difference in negative affect (t(20) = 4.75, p < .001).

The scores on PWB were also analysed through a paired samples t-test. The mean score for autonomy measured on PWB before mindfulness training was 24.88 (SD = 2.66), this rose slightly after training to 28.71 (SD = 2.69). The 95% confidence interval shows that the population mean difference of the variables lies somewhere between -5.54 and -3.13. The mean scores differed and the paired samples t-test showed that there was a significant difference between levels of autonomy before and after the mindfulness training (t(20) = -7.49, p < .001).

The mean score for environmental mastery before the training was 24.43 (SD = 2.66), after the training the mean was higher at 29.67 (SD = 2.54). The 95% confidence interval shows that the population mean difference of the variables lies somewhere between -6.55 and -3.93. These mean scores differed and a paired sample t-test showed that there was a significant difference between environmental mastery scores before and after the training (t(20) = -8.34, p <
The mean score for personal growth before the training was 25.76 (SD = 3.06), after the training the mean was higher at 31.19 (SD = 3.8). The 95% confidence interval shows that the population mean difference of the variables lies somewhere between -7.29 and -3.57. These mean scores differed and a paired sample t-test showed that there was a significant difference in scores on the measure of personal growth before and after the training (t(20) = -6.07, p < .001).

The mean score for positive relations with others before the training was 24.62 (SD = 1.75), after the training the mean was higher at 30.67 (SD = 4.28). The 95% confidence interval shows that the population mean difference of the variables lies somewhere between -8.08 and -4.02. These mean scores differed and a paired sample t-test showed that there was a significant difference in scores on the measure of positive relations with others before and after the training (t(20) = -6.22, p < .001).

The mean score for purpose in life before the training was 24.86 (SD = 2.41), after the training the mean was higher at 28.62 (SD = 3.98). The 95% confidence interval shows that the population mean difference of the variables lies somewhere between -5.83 and -1.69. These mean scores differed and a paired sample t-test showed that there was a significant difference in scores for purpose in life before and after the training (t(20) = -3.79, p = .001).
The mean score for self-acceptance before the training was 25.57 (SD = 2.73), after the training the mean was higher at 30.71 (SD = 3.73). The 95% confidence interval shows that the population mean difference of the variables lies somewhere between -6.83 and -3.46. These mean scores differed and a paired sample t-test showed that there was a significant difference in levels of self-acceptance before and after the training (t(20) = -6.36, p < .001).

Chapter 4 - Discussion

4.1 Aims of the Study

The aim of this study has been to look at the relationship between mindfulness and psychological strengths. The study aimed to take a further step through the identification and testing of a freely available tool that has the ability to increase mindfulness and the positive psychological strengths of positive affect and psychological well-being while reducing negative affect.

4.2 Main Findings

The main findings of the study were that there was a significant positive correlation between mindfulness and positive affect in the correlation part of the study. Also in this part of the study a significant negative correlation was
discovered between mindfulness and negative affect. Interestingly, a positive correlation was not discovered between levels of mindfulness and psychological well-being and there was a significant negative correlation between mindfulness and the outcome variable of environmental mastery. The research also found significant increases in positive affect and psychological well-being as well as a significant reduction in negative affect in a group who completed a short online mindfulness training programme.

4.3 Analysis by Hypothesis

Hypothesis 1 (Correlation)

H1 predicted that would be a significant, positive correlation between mindfulness and positive affect and a significant negative correlation between mindfulness and negative affect. A significant relationship positive relationship was found between mindfulness and positive affect and a significant negative relationship was found between mindfulness and negative affect. In this case, the null hypothesis can be rejected.

The results from this part of the study echo the proposition of Shapiro, Schwartz and Santerre (2002) in their discussion on meditation and positive psychology. A key aspect of this argument being that meditation has a particular ability to “uncover the positive and catalyze our internal potential for healing and
development.” Through this link with increases in positive affect and decreases in negative affect, there is a key relationship between mindfulness and core aspects of positive psychology.

**Hypothesis 2 (Correlation)**

H2 stated that there would be a significant positive correlation between mindfulness and psychological well-being. This research found that there was no significant relationship between these variables. The null hypothesis cannot be rejected. In addition to this it was found that environmental mastery, one of the outcome variables for psychological well-being had a significant negative correlation with mindfulness.

This is an interesting result. While it does not directly contradict previous evidence, it certainly goes against the trend that has been set. Research by Brown and Ryan (2003) for example identifies mindfulness as measured by the MAAS as having a well developed role in psychological well-being. This research had a large sample and results included positive correlations between mindfulness and scales measuring numerous traits linked with psychological well being including self-esteem (measured on MSEI), optimism (measured on LOT), self-actualisation (measured on MAP) as well as negative correlations with measured linked to psychological suffering (e.g. anxiety). A difference that may explain this contradiction in result may be explained through what these scales
measure. Many of the scales correlated in the study by Brown and Ryan (2003) have a focus on more “internal” traits that relate to people’s self perception and beliefs. This is also true of the scales that showed a positive correlation in this study, positive and negative affect are traits felt by individuals. The psychological well-being scales used in this study have a particular focus on more “external” measures of well-being. These include autonomy which involves a level of resisting outside social forces, positive relationships with others that obviously involves external relationships and social forces, environmental mastery involves further external relationships, this time with the goal of manipulating the environment to suit one’s own agenda. Mindfulness being quite an internal state focused on the subjective experience of the individual more than their ability to engage successfully with a more external environment.

**Hypothesis 3 (Quasi-Experiment)**

H3 stated that participation in a brief online mindfulness training programme will lead to a significant increase levels of mindfulness, positive affect and psychological well being and a significant reduction in negative affect. The result of this enquiry showed that there was a significant increase in the variables in question, with the exception of positive affect, along with a significant decrease in negative affect. The null hypothesis can be rejected in this case.

The finding of this part of the study follows on from the trend set in previous
research. The significant increase in levels of mindfulness gives further weight to the assertion of Gluck & Maercker (2011, p. 1) that “mindfulness can be taught online.” This result also adds to the research of Cavanagh et. al. (2013) that gave us evidence that “brief, self-guided, online, mindfulness interventions may offer benefits for non-clinical groups seeking stress-reduction strategies” (p. 577). In particular, we might state that as a result of this research there is an indication that brief, self-guided, online mindfulness interventions can offer benefits to non-clinical groups seeking to develop greater positive psychological strengths and well-being.

### 4.4 Other Findings of Interest

An interesting element found in this research is that in the correlation part of the study, mindfulness does not correlate with psychological wellbeing but in the quasi-experiment, levels of mindfulness rose significantly along with levels of psychological well-being suggesting some sort of link between the two. The difference here may be due to the difference in the self-selecting sample for both studies. It may be assumed that people who self-selected to participate in the mindfulness study may have a higher level of investment in mindfulness and psychological well being than those who self-selected to complete a short survey.

An interesting finding of this research was that discovered in the correlation part of the study. Here, it was found that age correlated positively with positive affect.

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and personal growth and negatively with negative affect. These results suggest that as age increases, so too does positive affect, negative affect decreases and there is a greater sense of meaning and purpose in life. A regression model showed that age was responsible for 22.6% of the variance in these variables in this sample. This discovery appears to go along with the colloquialism that as we age we get “older and wiser.” Further to this, studies (discussed in Psychological Science, 2012) have found that older people are happier and seek out situations that lift their moods, let go of disappointment around unachieved goals and develop goals aimed at greater wellbeing. This discovery concurs with this previous research.

Previous studies such as that of Cavanagh et. al. (2013) found high levels of attrition in studies of a similar nature to the quasi-experiment here. This was not the case in this study. Although a number of individuals who expressed an interest via e-mail did not follow up by completing the training, all 21 participants who completed the initial questionnaire went on to complete the mindfulness training and post training measures. High rates of attrition are also observed in therapies delivered online (So et. al., 2013). A number of factors may have contributed to this difference. First of all, the majority of the sample for this study have come from a background where there may be a particular interest in mindfulness and well being. Further to this, personalised contact between the researcher and participants could be a factor. Another possible difference that may have caused this is the fact that the mindfulness programme is quite well
developed and incorporates reminder e-mails as a part of the marketing strategy to encourage people to continue and pursue further mindfulness training for a fee. Future research may benefit from motivational reminders to engage in practice delivered personally where possible. Also, not all populations will have a low attrition rate shown here and only a larger initial sample will ensure that a sufficient number of participants complete the intervention being tested.

4.5 Strengths and Weaknesses

Strengths of this study include its high level of replicability. The materials and apparatus involved are detailed in the method section of this report and can be obtained free of charge. The simplicity of the study is also a strength and adds to its replicability.

Another strength of the study is its methodological rigor. The tests used in the study are well established and have been shown to be consistently reliable with high levels of Chrobach’s alpha.

From an ethical standpoint this has been a respectable study with no participants harmed. In particular, the participants who completed the mindfulness training appeared to gain a level of psychological well-being from taking part. Further to this, the study sets the basis for further socio-political impact. In its desire to identify freely available interventions that can be accessed by anybody that are
proven to increase well-being, the study seeks to have a positive impact on society as a whole. This also fits in with the ideals of positive psychology being applied to create more positive societies.

The study also had a number of weaknesses. First of all, sample size was quite small. Particularly in the quasi-experiment. In addition, the sample used was quite homogenous in nature. Again, particularly in the group who completed the mindfulness training. The majority of this group were quite culturally homogenous with a large percentage coming from a white, irish, middle class background. In order to widen the ecological validity of the study, a more diverse sample would be useful. Further to this, in both samples, there was a level of gender imbalance with more females than males taking part in each part of the study.

An central aspect of the study has been the focus of the quasi-experiment on a brief online intervention. This may in fact be a weakness of the study. While significant results were found, these appeared after a brief amount of training. If this change can happen quickly in a positive manner, the reverse may also be true.

A final weakness of the quasi-experiment is in the area of experimental rigor. As is the nature of the quasi-experiment, there was no control group to control for extraneous variables.
4.6 Future Research & Implications

There is a lot of developments that can be made to further this piece of research and further research into the field. This research found that one particular online mindfulness training programme can be effective in increasing psychological well-being, numerous other such programmes exist and potentially offer similar or greater benefits. Further research could compare and contrast the various forms of training to find those with the best outcomes.

Further research into mindfulness training would benefit greatly from a greater sample size. In addition to this, more rigorous research designs are required to ensure the efficacy of any programme designed to increase well-being. In particular a randomized-controlled trial comparing mindfulness interventions with other placebo treatments and waiting list controls would add validity to the findings of this research. Further research of this kind would also benefit from follow-up studies to investigate the long-term effects of mindfulness training.

The findings of the correlation study were that mindfulness did not correlate with the positive psychological strengths variables that were tested here. Further research could test this with a wider sample to ensure the validity of this finding.

While this research shows that mindfulness training can be effective in increasing
psychological well-being, it does not offer a mechanism of how this is achieved. Further research could look into what causes the benefits of mindfulness. Research mentioned in the introduction such as the work of Morrison et. al. (2014) into mind wandering and the default mode network has been a step towards developing an understanding of this but more is required to gain a clearer picture.

4.7 Conclusion

To conclude, this study has shown slightly mixed results in terms of the place that mindfulness could occupy in the field of positive psychology. While the correlation study shows a positive correlation between mindfulness and positive affect and a negative correlation with negative affect crediting mindfulness with a link to better feelings, there is contrasting evidence from the same sample to say that mindfulness does not have a significant positive relationship with psychological well-being. A significant finding in the study that participation in a brief, online mindfulness training programme can increase psychological well-being in a non-clinical sample is an interesting result that builds on previous research and extends the reach of mindfulness from traditional forms of pathological psychology in to the realm of positive psychology, enhancing people’s strengths and creating resilience and in doing so brings it back to its original purpose developed thousands of years ago. This research offers hope that further positive psychology and mindfulness interventions can be developed,
identified and tested and can have a significant positive effect on populations across the world.
References


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Appendix

Measures Used


Measure for level of mindfulness – high or low
Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost Always</td>
<td>Very Frequently</td>
<td>Somewhat Frequently</td>
<td>Very Infrequently</td>
<td>Somewhat Infrequently</td>
<td>Almost Never</td>
</tr>
</tbody>
</table>

I could be experiencing some emotion and not be conscious of it until some time later.  
I break or spill things because of carelessness, not paying attention, or thinking of something else.  
I find it difficult to stay focused on what's happening in the present.  
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.  
I tend not to notice feelings of physical tension or discomfort until they really grab my attention.  
I forget a person's name almost as soon as I've been told it for the first time.  
It seems I am "running on automatic," without much awareness of what I'm doing.  
I rush through activities without being really attentive to them.  
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.  
I do jobs or tasks automatically, without being aware of what I'm doing.  
I find myself listening to someone with one ear, doing something else at the same time.  
I drive places on 'automatic pilot' and then wonder why I went there.  
I find myself preoccupied with the future or the past.  
I find myself doing things without paying attention.  
I snack without being aware that I'm eating.
**Psychological Well-being Scale (PWB) – Ryff**

Measures self acceptance, quality ties to others, autonomy, ability to manage complex environments to suit personal needs, meaningful goals and purpose in life, growth and development as a person.

**Please indicate your degree of agreement (using a score ranging from 1-6) to the following sentences.**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>2. In general, I feel I am in charge of the situation in which I live.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>3. I am not interested in activities that will expand my horizons.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>4. Most people see me as loving and affectionate.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>5. I live life one day at a time and don’t really think about the future.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>6. When I look at the story of my life, I am pleased with how things have turned out.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>7. My decisions are not usually influenced by what everyone else is doing.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>8. The demands of everyday life often get me down.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>9. I think it is important to have new experiences that challenge how you think about yourself and the world.</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
</tbody>
</table>

Maintaining close relationships has been difficult and frustrating for me. | 1 2 3 4 5 6 |

I have a sense of direction and purpose in life. | 1 2 3 4 5 6 |

In general, I feel confident and positive about myself. | 1 2 3 4 5 6 |

I tend to worry about what other people think of me. | 1 2 3 4 5 6 |

I do not fit very well with the people and the community around me. | 1 2 3 4 5 6 |

When I think about it, I haven’t really improved much as a person over the years. | 1 2 3 4 5 6 |

I often feel lonely because I have few close friends with whom to share my concerns. | 1 2 3 4 5 6 |

My daily activities often seem trivial and unimportant to me. | 1 2 3 4 5 6 |

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I feel like many of the people I know have gotten more out of life than I have. 1 2 3 4 5 6

I tend to be influenced by people with strong opinions. 1 2 3 4 5 6

I am quite good at managing the many responsibilities of my daily life. 1 2 3 4 5 6

I have the sense that I have developed a lot as a person over time. 1 2 3 4 5 6

I enjoy personal and mutual conversations with family members or friends. 1 2 3 4 5 6

I don't have a good sense of what it is I'm trying to accomplish in life. 1 2 3 4 5 6

I like most aspects of my personality. 1 2 3 4 5 6

I have confidence in my opinions, even if they are contrary to the general consensus. 1 2 3 4 5 6

I often feel overwhelmed by my responsibilities 1 2 3 4 5 6

I do not enjoy being in new situations that require me to change my old familiar ways of doing things. 1 2 3 4 5 6

People would describe me as a giving person, willing to share my time with others. 1 2 3 4 5 6

I enjoy making plans for the future and working to make them a reality. 1 2 3 4 5 6

In many ways, I feel disappointed about my achievements in life. 1 2 3 4 5 6

31. It's difficult for me to voice my own opinions on controversial matters. 1 2 3 4 5 6

I have difficulty arranging my life in a way that is satisfying to me. 1 2 3 4 5 6

For me, life has been a continuous process of learning, changing, and growth. 1 2 3 4 5 6

I have not experienced many warm and trusting relationships with others. 1 2 3 4 5 6

Some people wander aimlessly through life, but I am not one of them. 1 2 3 4 5 6

My attitude about myself is probably not as positive as most people feel about themselves. 1 2 3 4 5 6

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37. I judge myself by what I think is important, not by the values of what others think is important.

I have been able to build a home and a lifestyle for myself that is much to my liking.

I gave up trying to make big improvements or changes in my life a long time ago.

I know that I can trust my friends, and they know they can trust me.

I sometimes feel as if I've done all there is to do in life.

When I compare myself to friends and acquaintances, it makes me feel good about who I am.

---

**PANAS scale (Watson et. Al, 1998)**

Measures affect – positive or negative.

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment.

1 Very Slightly or Not At All 2 A Little 3 Moderately 4 Quite a Bit 5 Extremely

1. Interested 11. Irritable

2. Distressed 12. Alert

3. Excited 13. Ashamed

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5. Strong  15. Nervous
7. Scared  17. Attentive
8. Hostile  18. Jittery
9. Enthusiastic  19. Active
Sample Information Sheet

My name is Ciarán Foley and I am conducting research that investigates the relationship between mindfulness training and psychological well-being. This research is being conducted as part of my studies towards the Higher Diploma in Psychology in Dublin Business School and will be submitted for examination.

You are invited to take part in this study and participation involves completing the following survey, participating in an online mindfulness training programme involving ten minutes of guided meditation each day for a total of ten days and finally completing this questionnaire again after the ten days of mindfulness practice.

While mindfulness is documented as an extremely positive and beneficial activity, there is a risk that practice may cause you to become aware of some already existing negative feelings. If participation in this research raises any difficulty for you, contact information for support services are included on the final page.

Participation is completely voluntary and you are not obliged to take part. You also have the right to withdraw your data at any time. If you wish to do this at any point, please contact me via e-mail.

Participation in the study is completely confidential. All data gained through the questionnaire will be stored securely on a password-protected computer at all times and will only be accessible by the researcher.

Should you require any further information about the research, please contact me via e-mail: . My supervisor Chris Gibbons can be contacted at or by phone on

Thank you for taking the time to participate in this research.

I hope that it will be of benefit to you,

Ciarán Foley