

*Meditation gone mobile: The effects of short term mobile based meditation on wisdom  
and self-transcendence*

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# 1 ABSTRACT

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The primary aim of the study was to assess the effects of a short meditation on Wisdom and Self Transcendence. The mindfulness course consisted of undertaking ten minutes of mindfulness training for ten days and was delivered through the mobile application headspace. The Secondary aim of the study was to assess Levenson (2005) claim that Self transcendence may be a pathway to wisdom and Webster (2003) finding that life experiences appear to play a pivotal role in overall wisdom levels. An analysis of both variables was carried out by administering the Self Assed Wisdom Scale (SAWS) developed by Webster (2003) and the Adult Self-Transcendence Inventory (ASTI) developed by Levenson (2005) to a sample of 31 participant's pre and post mindfulness training. In addition, an analysis of the relationship between self-transcendence and wisdom was carried out along with an analysis of the effects of the sub variable labeled 'experience' and its relationship with overall wisdom levels. Results suggest that wisdom did indeed increase but no statistically relevant increase was found. However, the self-transcendence variable did see a considerable increase pre and post mindfulness training. In addition, a strong correlation was found between self-transcendence and wisdom and between experience and wisdom. Further study may be needed to assess how self-transcendence may be encouraged within a clinical framework to garner its protective mental health benefits.

## 2 LITERATURE REVIEW/ INTRODUCTION

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In today's world we have access to a wealth of knowledge and information, IQ's are increasing year on year yet so also is conflict and mental health issues (Sternberg, 2001). Individuals who score higher in self-transcendence and wisdom tests tend to have more emotional regulation and higher levels of empathy( Roháriková et al.2013) Roháriková et al.(2013) suggests that 'Wise people have reflective and perspective-taking abilities, which enable them to conserve feelings of self-efficacy, satisfaction, general well-being, meaning and purpose in life'.(p.97). The present study will aim to evaluate the relationship between short term mobile meditative practices, through a short online app based Buddhist course that asks the users to complete ten minutes of training for ten days. The research is essentially asking the question can wisdom and self-transcendence be invoked in individuals through an easily accessible mobile application.

### 2.1 MAIN THEORIES OF INTEREST

### 2.2 WISDOM

The quest for wisdom dates back almost as far as humans have existed and can be found as far back as the third century BC (Staudinger & Glück 2011). G. Stanley Hall (1922) is suggested as the first psychologist to describe the concept in terms of a process which occurs with age whereby a person is meditative, calm and has a desire to be moral and just (Staudinger & Glück 2011). Although, mentioned in many forms throughout history, wisdom research was

not defined as a psychological concept until Clayton (1975) began to look at its variable in relation to the areas of development across the lifespan, personal growth and aging. Definitions of wisdom vary throughout the literature from being described as a cognitive process such as an 'expert knowledge system' mainly based in the psychological study of aging and life span development (Baltes & Smith, 1990). However, experienced wisdom is used across the life span and is not necessarily determined by age. Ardelt (1997) describes wisdom as being made up of not just descriptive knowledge, which can be said to be an accumulation of truths and fact. Rather wisdom is based in interpretive knowledge, which can be said to be the understanding of experiences on a deeper level than previously acquired and a more profound outlook on events. In contrast to Baltes & Smith (1990) and Ardelt (1997), Orwell & Achenbaum (1993) put forward the argument that wisdom is a more complicated and elaborate concept and present a model which is two dimensional. Intrapersonal and transpersonal variables are presented on one axis and cognition and personality on the other (Orwell & Achenbaum, 1993). Baltes, & Smith (1990) suggest that many researchers shied away from the study of wisdom because it was a higher level process which was by definition unapproachable by science and that the mere action of trying to change wisdom into a concept of public debate, would surely alter its basic foundations (Baltes & Smith, 1990). Correspondingly, Bluck & Gluck (2004) suggest that in modern society it is hard to ignore the image of the wise old man.

Building on the previous research on wisdom as a developmental process and as a multidimensional concept, (Clayton, 1975; Orwell & Achenbaum, 1993) Webster, (2003) suggests that people who have experienced greater trauma or difficulty in their life are generally wiser. Suggesting that life difficulties force individuals to self assess, reflect and learn from their experiences. This life review is put forward as the pathway that allows us to bypass our ego

integrity. Glück et al (2013) suggested that wisdom from a measurement perspective can be viewed under two separate distinctions. Firstly wisdom is studied through either a self-assessment tool such as a survey or alternatively as performance based measure such as the Berlin Wisdom Paradigm (Mickler and Staudinger, 2008). Secondly wisdom research and measurement can be divided by the construct of wisdom under investigation e.g. personal or general wisdom. Personal wisdom is acquired through one's own life experiences and general wisdom focuses more on general world view and cognitive functions (Glück et al., 2013). Webster (2003) suggested that personal wisdom as a concept is hard to operationalize with one single component not being sufficient to describe wisdom in its entirety. Instead a five dimension model is put forward containing, experiences, emotions, reminiscence, openness and humor (Webster, 2003). Using the Self Assesed Wisdom Scale, Webster (2003) suggests that wisdom can be considered as 'a multidimensional cohesion of five mutually interdependent factors. When these dimensions are holistically combined to a high degree in an individual, we recognize that person as wise'.

### 2.3 SELF-TRANSCENDENCE

Maslow (1943) first proposed the concept of self-transcendence as an integral part of his hierarchy of needs sitting the concept within self-actualization. Maslow himself stating that 'I am Freudian and I am behavioristic and I am humanistic, and as a matter of fact I am developing what might be called a fourth psychology of transcendence as well' (Maslow, 1969b, p. 724). Koltko-Rivera (2006) challenges the traditional view of Maslow's theory presented in psychology textbooks suggests that Maslow himself in later years revised his theory and made clear distinction between self-transcendence and self-actualizations. Koltko-Rivera (2006) states that Maslow came to the conclusion that it was

possible to achieve self-actualization and use the language of someone who has reached their full potential, having not reached that level of motivation that originates above the level of health and the self. Maslow suggested that ‘It is unfortunate that I can no longer be theoretically neat at this level. I find not only self-actualizing persons who transcend, but also nonhealthy people, nonself-actualizers who have important transcendent experiences. It seems to me that I have found some degree of transcendence in many people other than self-actualizing ones. (Maslow, 1969/1993b, p. 270)

Reed (1991) found that an increase in self-transcendence lead to a protective effect on mental health and highlighted the importance of expanding mental and physical boundaries in old age. Building on this, Tornstam (1994) first developed the concept of Geotranscendence. Geotranscendence can be defined as a shift in meta-perspective, from a materialistic and pragmatic view of the world to a more cosmic and transcendent one, normally accompanied by an increase in life satisfaction’ (Tornstam, 1997.p145). Vago & Silbersweig (2012) suggest that self-transcendence is a key concept in meditative practice, defining it as ‘A positive relationship between self and other that transcends self-focused needs and increases prosocial characteristics’ (p1). Levenson, (2005) notes that both reed (1991) and Torstam (1994) agree that transcendence does not necessarily need to be confined to old age and that an expansion of the self can be achieved at any age through spiritual practice or trauma. Gluck et al. (2003) suggested that the ASTI was ‘positively related to openness to experience, extraversion, meditation practice, and egalitarianism, and negatively related to neuroticism, vertical individualism, and immature love’ (p.415). Levenson, Aldwin, & Cupertino (2001) conclude that self-transcendence occurs through the development of a person and is essentially a developmental pathway to wisdom.

Curnow (1999) suggests that wisdom is made up of self-knowledge, detachment, integration, and transcendence. Building on Curnow (1999), Levenson (2005) argues that these aspects of wisdom can be considered as stages in the development to wisdom which will ultimately lead to transcendence or contain an aspect of self-transcendence.

## 2.4 MINDFULNESS AND THE BUDDHIST APPROACH

There has been a considerable focus on meditation and mindfulness' practices in recent years and psychological research in the area has dramatically increased since the mid 1990's (Williams & Kabat-Zinn, 2011). Mindfulness as a concept is often hard to operationalize. However, it has been recently adapted as state, trait and process approach to reducing stress and improving emotional regulation (Vago & Silbersweig, 2012). Generally, Vago & Silbersweig (2012) suggest there are two models used in research to cultivate the essence of meditation. Firstly, there is the 2500 year old meditative practice that is firmly rooted in traditional Buddhist sciences or secondly there is the 25 year old clinical practice described by Kabat-Zinn (1990) through the mindfulness based stress reduction (MBSR) techniques presented as a method for general stress reduction in a clinical setting. Williams & Kabat-Zinn (2011) suggest that although the growth in interest in meditative practice has grown exponentially, a focus and divergence of both streams of knowledge can not only benefit both disciplines providing the empirical roots of each stream are held true. Meditative practices are both closely tied to wisdom and self-transcendence and both concepts are mentioned as key commandant to the makeup of the practice and included in expected results (Vago & Silbersweig, 2012). Vago & Silbersweig (2012) suggest that meditation and mindfulness practices can be defined 'systematic mental training that develops meta-awareness (self-awareness), an ability to effectively modulate one's behavior (self-regulation), and a positive relationship between self and other that transcends self-

focused needs and increases prosocial characteristics(self-transcendence)' (p.1). Brewer et al. (2011) suggests that mindfulness training appears to reduce individuals propensity to mind wander and reduces activations in the default mode network whilst increasing structural connections between the posterior cingulate, dorsal anterior and the dorsolateral prefrontal cortex, all areas of the brain which appear to play a role in self-monitoring and cognitive control. Tang, Tang & Posner (2013) found that a brief mindfulness intervention could produce a reduction in smoking by up to 60% when compared to a control

## 2.5 COMPUTER BASED MINDFULNESS AND SMART PHONE APPLICATIONS

Computer based psychologic interventions have become a popular way to deliver possible treatment to at risk groups and groups of individuals who do not feel comfortable accessing more traditional treatment options (Davie & Glazebrook 2014). Davie & Glazebrook (2014) through a meta-analysis of the literature suggests that it can be a way to treat student stress and depression effectively. Thompson (2010) suggests that distance delivery of mindfulness training led to a significant reduction in depressive symptoms when compared to a control. Younge et al. (2015) in their study on patients with heart disease, suggests that online mindfulness intervention had an impact on psychological well-being, exercise capacity and heart rate. Cavanagh (2010) further support short term mindfulness interventions, suggesting that there is significant support for short term mindfulness practices to reduce anxiety and induce behavior changes. In addition, mobile page views account for 25% of total worldwide page views and mobile health initiatives is a field which is attracting more attention internationally (Mani, et al., 2015). Mani, et al., (2015) propose that recent research has highlighted that 39% of young people have searched for health information on their mobile phone. In their study of mindfulness applications within the app store, Mani, et al. (2015) found that only 4% of the total 700 hundred

apps found actually provided mindfulness training. The authors employed a self-created scales called the MARs, which looked at mindfulness apps across a number of categories such as engagement, functionality aesthetics, information and satisfaction. In their analysis the headspace application performed the best in all categories and at delivering an overall authentic meditative practice (Mani, et al., 2015).

## 2.6 CURRENT STUDY

The current study as stated above is essentially assessing the relationship between short term meditative practice and self-transcendence and personal wisdom. For the purpose of the study when the author refers to wisdom it is only in relation to personal wisdom. Although there has been increased focus on meditative practice, many of the studies listed above use the academic version of mindfulness training developed by Kabbat-Zinn (1990) which loses some of the traditional Buddhist aspects. In addition, both wisdom and self-transcendence has seen considerably interest over the last two decades in psychology and the author suggests that tackling areas/concepts which are hard to operationalize will only further the field's goals to be seen as more of a science. Furthermore, religious practice has greatly reduced in recent years and general intelligence has increased year on year (Sternberg, 2001) yet the need for mental health interventions, at least in the west, has also seen a steady increase. Some researchers suggest that a need for connectedness to something bigger may be an evolutionary over hang (Haidt, 2006) and ignoring all areas of transcendence and wisdom may lead to an existential void which individuals find hard to fill (Frankl,1985).

As stated above, wisdom has many protective mental health aspects which appear to progress throughout the lifespan. Self-transcendence not only offers individuals a pathway to

wisdom but also a sense of perspective which appears to bridge the gap between ones sense of future, past and present. Mindfulness training has been shown to decrease activation in the brain area, or more specifically network, called the default mode. This area is responsible for our wandering minds which for many can be the primary cause of anxious thoughts. Therefore, the author suggest that mindfulness practice alone is a positive attribute to mental health and coupled with the possibility to become more wise and have more self-transcendental moments, should lead to a generally more empathetic and considerate human beings. For the purpose of this research mindfulness is the event of being present and meditation is the practice which allows subjects to achieve the event.

Therefore, the researcher suggests that completion of the short term mindfulness course will lead to an increase in scores on both the SAWS inventory and the ASTI. In addition, it is predicted that there will be a positive correlation between self-transcendence and wisdom and a positive relationship between the ‘experience’ sub variable and overall wisdom score. The current study will attempt to assess this phenomenon by administering both scales to a group of 31 respondents both before and after they have completed ten minutes of mindfulness training for ten days. As far-fetched as this notion may seem, being able to teach people even a fraction of the aspects of the variables under consideration, can only further to help individuals in their struggle to except the human condition.

### 2.6.1 Hypothesis 1

It was predicted that wisdom and self-transcendence would see a statistically significant increase after participation in a short mindfulness course delivered through the mobile application called headspace

### 2.6.2 Hypothesis 2

It was predicted that there would be a significant linear relationship between self-transcendence and wisdom

### 2.6.3 Hypothesis 3

It was predicted that there would be a significant linear relationship between experience and overall wisdom

## 3 METHOD

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### 3.1 PARTICIPANTS

The sample consists of 35 subjects made of up of 55% female and 45% between the ages of 18- 55+. Convenience sampling was first employed to recruit from the student population at Dublin Business School (DBS), the researcher's place of employment and family members. In addition, recruitment of participants was generated through Facebook, internal social networks in the researchers place of employment and through alternative social networks such as reddit and twitter. All participants voluntarily took part in this study and were purposefully deceived about the variables being studied so as not to bias the results. All participants where made aware of this deception upon sign up and a full follow up email was provided to explain the nature of the study once the close off date for final mediations was reached.

No monetary incentive was given for participation however the landing page built to encourage sign up did mention the possible benefits of meditation derived from other studies. These benefits were listed as improved focus and improved relationships both romantic and or otherwise. There was no limitation to the study with regards to specific demographic variable

such as age or sex as the researcher is attempting to study a cross section of the population. Therefore a wide variety of age groups took part in the study.

## 3.2 DESIGN

A quasi experimental based design was employed for this research. Data was collected using a self-report online questionnaire form. The overall form contained two separate sections dealing with the variables in questions and a primary demographic section. The questionnaires used two separate scales each of which was highlighted at the beginning of their respective sections. Each scale in the various sections maintained its standard format and was explained in an introductory sentence. For the Quasi experimental design the independent variable was interpreted as the mindfulness training and the dependent variables were listed as Self Transcendence and Wisdom. No control group was included due to time and resource constraints.

## 3.3 MATERIALS

The materials which participants were asked to fill out included two self-report online questionnaires, both of which will be discussed below

### 3.3.1 Self-Assessed Wisdom Scale (SAWS)

The SAWS (Webster, 2003, 2007) measure five dimensions of wisdom which are emotional regulation, humor, critical life experience, and reminiscence and reflectiveness. The self-report questionnaire contains 40 question and respondents are asked to agree or disagree

with each statement on a 6 point Likert Scale (ranging from strongly disagree” to “strongly agree.”). Items used in the scale include ‘I have overcome many painful events in my life’ ‘There can be amusing elements even in very difficult life situations’ and ‘I often find memories of my past can be important coping resources’ Instructions were given to participants upon taking the questionnaire. However, all participants were purposefully deceived as to the variables being studied. This was done to reduce bias and increase validity. The SWAS inventory scored highly on measures of construct validity and as highly reliable as a self-report measure (Gluck et.al, 2003). Webster (2007) reported a Cronbach's alpha of 0.90. Gluck et.al (2003) did however note that it may suffer somewhat on face validity as the questions are somewhat obvious. It is for this reason the researcher chose to keep the nature of the study hidden to participants

### 3.3.2 Adult self-transcendence Inventory (ASTI)

The Adult Self-Transcendence inventory (Levenson, 2005) consists of 18 Likert scales questions ranging from 1 (strongly disagree) to 4 (strongly agree) which was provided by the original authors. Levenson (2005) suggest that to date in the literature there are 4 separate measures of transcendence. The present scale was created to draw on all 4 previous scales but also to assess Self transcendence from a developmental perspective not specific to age. The scale presents questions such as ‘I am more likely to engage in quiet contemplation’ and ‘My sense of self is less dependent on other people and things’. Levenson (2005) presented the original scale with written instructions which stated ‘We would like to know whether your view of life is different today than it was five years ago’. Levenson et al. (2005) reported a Cronbach's alpha of 0.75.

### 3.3.3 Headspace mindfulness app

The headspace application was used in the study to allow participants to take part in a short ten day mindfulness course. The course allows for ten minutes of mindfulness training for ten days free of charge. Participants were required to have access to a mobile device which supports the application and has an audio component. The application is freely available on both the ios and android software platforms and can also be used across a number of different tablets devices. The app was chosen as in recent research it scored the highest across the variables as engagement, functionality aesthetics, information and satisfaction. (Mani, et al., 2015).

## 3.4 PROCEDURE

Participants were recruited through the method above and provided with an online landing page which outlined the study in full (<http://tenforten.instapage.com/>). The landing page contained access buttons to both the survey and the download page. The buttons were placed at the top of the page to maximize participation and click through rates. The page also contained an explanation of what the study would entail and also explained that ‘The nature of this study requires participants to be naive to the exact research question, as information about the research may influence your behavior and responses. For this reason we can only inform you that we are conducting research on the processes underlying mindfulness and meditation.’ A section outlining the possible risks was also provided. A detailed description of what participation in the study involved which stated that participation included taking the survey firstly, downloading the headspace application and carrying out ten minutes of mindfulness training for ten days. At this point it was also highlighted that a follow up email would also be sent to participants upon

completion of the course. It was requested that participant complete their mindfulness course before the 29<sup>th</sup> of February at which point they would receive the follow up survey. It should also be noted that the application itself addresses many of the deterrents to meditation through videos contained in the course. In addition, participants can only progress through the course by completing the previous ten minute sessions and there are a number of hints and tips throughout which encouraged participants to set in app reminders which would remind the user daily, to carry out their practice.

As the participants scrolled down the landing page they were also provided with additional information about previous research carried out on mindfulness. This information was provided directly from Headspace and include statements such as ‘NEUROSCIENTISTS have also found that practitioners had structural changes in the part of the brain involved in monitoring our FOCUS and SELF CONTROL’. The rational for providing this information was to not only encourage participation but to also solidify mindfulness practice as a scientific based practice which is not necessarily rooted in new age pseudoscience.

Participants received the following message which stated that ‘All individual information collected as part of the study, will be used solely for experimental purposes. They will be stored safely on a password protected laptop. Individual information collected will form the basis of an undergraduate thesis and no individual's data will be identifiable in the published thesis or reports arising from this study’ and contact details of the researcher were provided should participants have any additional questions.

Both surveys were created using google forms. Participants were presented with a three section questionnaire. The first section was a short demographics section and the second and

third sections is where the ASTI and SAWS research tools were included. As the participants progressed through the survey instructions were given on how to answer the questions using each measures individual scales. The secondary questionnaire was emailed to participants at the end of the specified time period at which point participants were requested to complete the survey again. It was not highlighted to participants that the questionnaires were the same at each time point. This was done to reduce any bias that participants may have acquired either consciously or unconsciously from taking the study in the first instance. Upon completion of both surveys participants were thanked for taking part in the research and assured that a full brief would be provided explaining the true nature of the study. Participants were informed again that all their data was kept strictly confidential and participation was anonymous.

## 4 RESULTS

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The aim of the study is to assess the relationship between wisdom and self-transcendence and short term mobile based meditation practices. It is hypothesized that both dependent variables (wisdom and self-transcendence) and subscales experience (2) Emotional Regulation (3) Reminiscence/Reflection (4) Humor (5) Openness will increase with online mindfulness training. It is also predicted that a relationship will be found between mindfulness and self-transcendence and the sub variable 'experience' and overall wisdom score suggesting further evidence that self-transcendence is a key component of wisdom and that life events have a strong positive linear relationship with wisdom

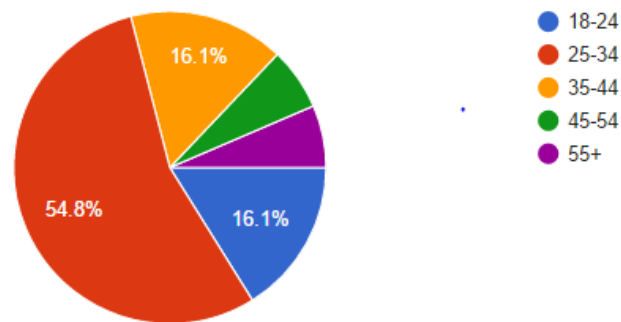
For clarity the current study will contain three separate sections. For the purpose of the study Wisdom as a construct was broken down into five sub variables, namely (1) experience (2) Emotional Regulation (3) Reminiscence/Reflection (4) Humor (5) Openness. Firstly an analysis

of the demographic makeup of the sample and its initial relationships with both wisdom and self-transcendence, secondly a comparison of the variables pre and post mindfulness training will be carried out via a paired sample t-test and thirdly linear regression will be carried out to assess the relationship between self-transcendence and wisdom and experience and wisdom.

#### 4.1 SAMPLE CHARACTERISTIC

A total of 31 participants took part in the study. As no restrictions were put in place with regards to age and gender the composition of the sample is discussed below. The sample was predominately male (58.1%) with females accounting for 41.9% of the total sample. There was no age specification included in participant's selection so a wide variation of ages can be seen (figure 1.1). The main age group represented in the sample is the 25-35 age group account for 54.8% of the total sample

Age (31 responses)



*Figure 1.1- Age*

### **Reliability statistics**

The wisdom scales sub variables, namely 1) experience (2) Emotional Regulation (3) Reminiscence/Reflection (4) Humor (5) Openness were assed for internal consistency and a Cronbach's alpha score was produced (please refer to table 2)

**Table 2:**

Cronbach's Alpha	Cronbach's Alpha based on standardized Items	N of items
.638	.644	5

Therefore by combing the five sub variables that the SAWS inventory produces to create the wisdom variable, .638 percent of the variance for the concept of wisdom can be consider true score variance. The scale appears to be a true and reliable measure of wisdom. Furthermore, the inter correlation matrix scores suggests that all variables show a strong positive correlation with each other. However, this is significantly lower than Webster (2007) finding of a Cronbach's alpha of 0.90.

## 4.2 DISTRIBUTION

To establish the normality of distribution between the two time points a Shapiro-Wilk's test ( $P > .05$ ) and a Kolmogorov-Smirnov test ( $P > 0.05$ ) was performed on the difference in scores between pre mindfulness training and post mindfulness training. In addition, a visual inspection of the bar charts, normal Q-Q plots and histograms was carried out. The above measures suggest that the data is normally distributed therefore parametric testing in the form of a paired sample t test was carried out.

## 4.3 DESCRIPTIVE STATISTICS

Descriptive statistics for the pre and post interventions can be seen below in table 1

4.3.1.1 Table 1: Pre and post Mindfulness training

<b>Variable</b>	<b>Intervention stage</b>	<b>Mean</b>	<b>Standard deviation</b>
Openness	<i>Pre</i>	33.65	5.238
	<i>Post</i>	34.33	5.185
Reminiscence/reflection	<i>Pre</i>	37.13	6.365
	<i>Post</i>	38.83	5.837

Emotional Regulation:	<i>Pre</i>	34.66	6.852
	<i>Post</i>	33.48	7.145
Humor	<i>Pre</i>	34.48	5.303
	<i>Post</i>	34.67	6.121
Experience	<i>Pre</i>	31.74	5.215
	<i>Post</i>	33.43	6.442
Self-transcendence	<i>Pre</i>	48.94	5.933
	<i>Post</i>	56.67	6.509
Wisdom	<i>Pre</i>	170.48	18.865
	<i>Post</i>	231.4	26.831

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The means and standard deviations for wisdom self-transcendence and all five sub scale variable, pre and post mindfulness training can be seen above. The mean wisdom value pretest (170.48) is seen to rise considerably post mindfulness training (231.4). This indicates that overall wisdom scores appear to have increased after participants carried out their mindfulness training. In addition, the Self-transcendence mean value pretest (48.94) can also be seen to rise

considerable post mindfulness training (56.67). This indicates that both wisdom and self-transcendence increased in between pre and post test.

#### 4.4 INFERENCE STATISTICS

Inferential statistics were then performed to formally analyze the differences between the two groups (pre mindfulness training and post mindfulness training) that were initially observed in the descriptive statistics. A paired sample t-test was conducted to compare the paired mean differences of wisdom (including its five sub variables) and self-transcendence pre and post mindfulness training. The results of which can be seen in table 3. Furthermore, effect size analysis was done to decipher the magnitude of the difference between pre and post mindfulness training.

**Table 3: Paired mean differences**

Pre and post meditation	Mean	SD	t	df	p
<b>Pair 1-</b> Openness	-.517	7.34	3.8	28	.116
<b>Pair 2-</b> Reminiscence/reflection	-1.55	8.97	-.93	28	.360
<b>Pair 3-</b> Emotional Regulation	1.07	6.44	.89	28	.379
<b>Pair 4-</b> Humor	-.38	5.84	.35	28	.729
<b>Pair 5 –</b> Experience	-1.90	6.30	-1.62	28	.116
<b>Pair 6 –</b> Wisdom	-7.52	26.31	-1.54	28	.135
<b>Pair 7</b> Self-transcendence	-4.241	7.33	1.36	28	.004

As table 3 highlights the results from the paired sample t test indicate, the null hypothesis for all variables, except self-transcendence, was accepted ( $p < 0.05$ ). Suggesting that there was no statistically significant difference in wisdom as an overall construct between pre and post mindfulness training. In addition, there was no significant increase or decrease in any of the five sub scale variables 1) experience (2) Emotional Regulation (3) Reminiscence/Reflection (4) Humor (5). However, the null hypothesis that there will be no change in self-transcendence must be rejected.  $t(28) = -4.24, p < 0.04$ . Thus, the post mindfulness training mean for self-transcendence was statistically significantly higher than the pre mindfulness training mean. The effect size was established by hand ( $d = 0.57$ ) suggesting the effect size of the mindfulness training was medium, as it falls within the accepted medium range of 0.5-0.8 (Pallant, 2007).

#### 4.4.1 Regression analysis

A standard linear regression analysis was performed to assess the ability of self-transcendence to predict an increase in wisdom. Preliminary analysis of the data suggest that there was no violation of the assumptions of normality linearity. In addition, a visual inspection of the bar charts, normal Q-Q plots and histograms was carried out which suggest the data is normally distributed. A strong significant correlation can be seen between the variables ( $r = .733, n = 31, p = 0.001$ ) and 53.6% of the variability in wisdom can be account for by the model ( $R^2 = .536$ ). In addition, the null hypothesis (that the independent variable does not predict the

dependent variable) was rejected ( $p=0.001$ ) as it was below the accepted threshold ( $p<0.05$ ) (Pallant, 2007).

A significant regression analysis was found ( $F(1,28) = 32.346, p <.000$ ) with an  $r^2$  of .536. Participant's wisdom score increased by three units for each one increase in the total score of self-transcendence. This suggests that self-transcendence may be a pathway to wisdom. From the regression analysis we can suggest that a one unit increase in self-transcendence will lead to a 3 unit increase in wisdom. However, we can truly only say that with 95% confidence, this value will lie somewhere between the lower band of -1.6 to 122.3

A second linear regression analysis was undertaken to assess Webster (2003) that people who have experienced grater trauma or difficulty in their life are generally wiser. Suggesting that life difficulties force individuals to self asses, reflect and learn from their experiences. In this case the dependent variable was set as wisdom and the independent variable as experience. Experience in the wisdom subscale is the specific construct which focuses on trauma and growth. A significant regression analysis was found ( $F(1,28) = 26.9, p <.000$ ) with an  $r^2$  of .49. Participants wisdom score increased 3.01 for each increase in experience. This supports Webster (2003) previous hypothesis

## 5 DISCUSSION

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The aim of the study was to assess the concepts of wisdom and self-transcendence and essentially see if they could be produced or increased in a sample population after a short meditations course was completed through the mobile application called headspace. The study was undertaken because previous research on Wisdom suggests it has a meditative calming effect on individuals, who generally strive to be moral and just in their actions (Staudinger & Glück, 2011). Furthermore wisdom is often said to hold a transcendental component which is representative and often tied back to the concept of self-transcendence. Self-transcendence itself has been suggested as having a possible protective effect over mental health.(Levenson ,2005: Torstam, 1994).

Interestingly, self-transcendence is a concept which has formed the foundations of humanistic theories such as Maslow's hierarchy of needs and was recognized as a key component of human nature (Maslow, 1954). Not only had that but Levenson (2005) suggested it is a developmental pathway to wisdom. Therefore, the aim of the study was to assess the concepts of wisdom and self-transcendence and essentially see if they could be produced or increased in a sample population after a short meditations course was completed through the mobile application called headspace. Further analysis was undertaking to assess Levenson (2005) claim that self-transcendence may be a pathway to wisdom by assessing the relationship between the variables using linear regression. Furthermore, analysis of Webster's (2003) theory that life

experience appears to be a key component in making people wise throughout the life span was carried out by examining the relationship between the experience sub variable and the overall wisdom variable.

## 5.1 FINDINGS

The main hypothesis in question was that wisdom and self-transcendence would increase after a short meditation course was undertaken through the mobile application headspace. Preliminary analysis of all wisdom variables suggested that wisdom had indeed increased substantially pre and post mindfulness training. Not only this, the mean score was considerably higher than 190, the score at which the author of the scale had suggested was a high result and would indicate someone as considerably wise ( $m = 235$  post training). It can therefore be inferred that because both scores pre and post mindfulness training were considerably higher than 190, that participants who took part in the study may have been considerably wiser due to other areas outside the study's scope. A paired sample t- test was then employed to assess whether the information gathered from the initial descriptive statistics was statically significant. However, the construct of wisdom as a whole and its separate sub variables of 1) experience (2) Emotional Regulation (3) Reminiscence/Reflection (4) Humor (5) did not pass the test of significance with p values well above the accepted limit of 0.05. Therefore, from the point of this study no real conclusions can be drawn from the increase in the wisdom variable pre and post mindfulness training and further study with a possible larger sample size may be needed to assess the wisdom variable as a whole. This also suggests that in the short term at least, wisdom may be a more elusive attribute to develop.

However, self-transcendence appeared to have increased and presented the researcher with a statistically significant result. Analysis of the t test results which were.  $t(28) = -4.24, p < 0.04$ . Suggests that a short ten minute mindfulness course carried out for ten days, did increase self-transcendence in participants who undertook the study. The researcher suggests that due to its protective mental health effects, more research should be undertaken to assess the self-transcendence variable as a possible treatment or preventive measure in populations that are prone to mental health issues such as depression or anxiety. Not only this but if self-transcendence really is a pathway to wisdom does this only apply to certain types of personality? Levenson (2005) suggest that it could not be account for by positive personality traits alone, but what does then make up self-transcendence as an operational construct? And exactly what is it that makes some of us more prone than others to achieve this greater sense of connectedness.

To assess Levenson (2005) conclusion that self-transcendence may be a developmental pathway to wisdom, a linear regression analysis was performed on post mindfulness training data. The results of which support Levenson (2005) findings in so much as there is at least a strong correlation between the two concepts. Not only this, but self-transcendence appears to have a large effect on wisdom with in an increase in one unit of self-transcendence leading to an increase of three in an individual's overall wisdom score. This supports the finding that self-transcendence may be a developmental pathway to wisdom in which case, it can be inferred that as self-transcendence appears, in the short term, to be increased by mindfulness training, then prolonged training may lead to greater increases in wisdom.. What is not clear however, is whether an increase in self-transcendence alone is enough to make someone wise or are their extraneous variables such as life events which may also be needed

Furthermore a second linear regression was performed to assess Webster (2003) theory that experience and life events generally make people wiser. A significantly strong correlation was found between experience and total wisdom score further supporting Webster's (2003) theory. Interestingly the scales does not address which life events are likely to make an individual more or less wise, or neither does it deal with the type of experience or weather it needs to be a negative or positive experience. For example, wisdom may increase due to post traumatic growth which is a learning often achieved through trauma (Calhoun & Tedeschi, 2014). However, wisdom association with positive life events appears to be understood to a lesser degree. The author suggests that would be an interesting avenue to develop in the field of wisdom research.

## 5.2 STRENGTHS AND LIMITATIONS

At this point the author must note the limitations to the current study. The sample size was small with only 31 participants taking part in the study. Due to sample size interpreting the results can also be somewhat difficult. For example, we cannot have complete confidence in the regression analysis as the confidence level lower band lies in the negative and the upper band lies in the extreme positive. From the regression analysis we can suggest that a one unit increase in self-transcendence will lead to a 3 unit increase in wisdom. However, we can truly only say that with 95% confidence, this value will lie somewhere between the lower band of -1.6 to 122.3. The same logic can be applied across all regression analysis performed in the study as the confidence intervals are similar.

The participants themselves were given instructions with regards to how to download the application and carry out the mindfulness training, however, no stringent tracking measure was put in place to ensure that participant's actually carried out the meditations. However, as recent research suggested above, the headspace applications itself is a well-designed thought out piece of software which encourages and guides the user through their course. (Mani, et al.,2015).

It must be noted that the headspace application itself does come with reminders and alerts which can be set and all participants were encouraged to use them. In addition, information suggesting the positive effects of meditation was provided on sign up and it was hoped that this would also encourage participation. Furthermore, the headspace application itself has videos staged throughout the ten days which deal with common pitfalls encountered when beginning meditative practices and it was hoped that this would combat attrition rates. For further research

the author would suggest adding either a self-report diary or carrying the study out in an environment when times could be blocked out each day and participation recorded. This may be possible in either a clinical or workplace environment.

The study specified that the ten days of mindfulness training had to be carried out and that the final date to complete the course was by the 29<sup>th</sup> of February. However, it did not address whether the ten minutes had to be carried out on ten consecutive days. Therefore, the author would suggest that the cumulative effect of meditations may have had a more profound effect on the overall scores but further research would be need to verify this. In conjunction with the above, participants were not informed that they would be answering the questions twice which may have led to answers that were very similar, at least in the case of the SWAS inventory. The author would suggest rearranging the questions in the post mindfulness training questionnaire in order to reduce any memory or familiarly bias. The initial choice to inform participants that they would be answering the same question twice was an intentional choice as the author felt that participants would not necessarily remember the previous questionnaire. The author now recognizes that one should not underestimate the strength of human memory. In addition, Gluck et.al (2003) did note that the SAWS scale may suffer somewhat on face validity. It is for this reason the researcher chose to keep the nature of the study hidden to participants which the author feels was a key strength to the study

No control group was employed and the again the author would suggest that adding this would be crucial for further research. Recruitment for a control group was not undertaken as recruitment for the study itself was generally quite difficult. A control group would allow for the differentiation between the actual practice of taking ten minutes to oneself each day in comparison with undertaking the meditation course.

### 5.3 FUTURE STUDY

The author would suggest that further study may take the shape of a larger study in either a clinical or workplace population whereby time slots for meditative practice could be implemented and tracked. In addition, the author would suggest employing a control group and adding a qualitative aspect to the research through one to one interviews. A qualitative aspect would allow for the exploration of a self-transcendental moment and give insight into what this might take the shape of. Furthermore, as previous research has suggested, trauma may play a key role in developing a sense of wisdom. Therefore, looking at the types of post traumatic growth experiences which are likely to lead to wiser individual may prove beneficial. A personality aspect could also be added as it is unclear if certain personality types would benefit more from mindfulness training.

## 5.1 CONCLUSION

In conclusion, although there was no direct significant increase in wisdom, the SAWS inventory is a step forward in operationalizing a complicated construct which many have shied away from. Not only this, but it is multidimensional which gives it flexibility as a psychological construct to allow for individual differences. Much like trait theory in personality it may not give us all the answers but it does appear to give us a framework from which to work within and may in fact give us a bird's eye view of a unique and interesting uniquely human phenomenon. Self-transcendence, although new age sounding in nature, has been a recognized concept in psychology from both an evolutionary and humanistic perspective for many years. A short term mindfulness course delivered through a mobile application did appear to increase this variable amongst participants and the author find this as an interesting and exciting finding. Not only is self-transcendence linked to more stable mental health, it also appears to be protective and possibly preventative in nature. The implications for individuals with mental health issue may be profound and it at least appears to play a part in creating a sense of wisdom amongst individuals. The aim of the research was to see if these variable could be essential thought to participants, enhancing individuals in their existence and generally improving relationships in the world we live in. The author would suggest that much like other veins in psychology such as psychotherapy and logotherapy, self-transcendence and wisdom may offer therapeutic values if placed within a clinical framework whereby they could be encouraged. Meditation may be the route by which this benefits of both variables could be, to borrow a term from Maslow, actualized.

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## 7 APPENDICES

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### 7.1 SAWS INVENTORY

**You have my permission to use the scale for research purposes. I would appreciate receiving any findings you collect from your work using the SAWS.**

**Thanks for your interest.**

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### **Scoring:**

**At this point, scoring involves simply summing over all items, using raw scores, to obtain a total SAWS score. The five factors, and their corresponding SAWS items are:**

- 1. Experience: 1,6,11,16,21,26,31,36**
- 2. Emotional Regulation: 2,7,12,17,22,27,32,37**
- 3. Reminiscence/Reflection: 3,8,13,18,23,28,33,38**
- 4. Humour: 4,9,14,19,24,29,34,39**
- 5. Openness: 5,10,15,20,25,30,35,40**

### **The SAWS Inventory**

This brief questionnaire is designed to investigate how people of different ages perceive themselves with respect to life experiences and whether or not these perceptions change as we grow older. You are asked to rate all of the following statements using the scale below. Remember, there are no “right” or “wrong” answers and your responses will remain anonymous.

Do not rush, but work steadily as we are interested in your first impressions. Please record your responses by circling only one number on the rating scale to the left of each statement.

1 = Strongly Disagree

2 = Moderately Disagree

3 = Slightly Disagree

4 = Slightly Agree

5 = Moderately Agree

6 = Strongly Agree

1. I have overcome many painful events in my life.
2. It is easy for me to adjust my emotions to the situation at hand.
3. I often think about connections between my past and present.
4. I can chuckle at personal embarrassments.
5. I like to read books which challenge me to think differently about issues.
6. I have had to make many important life decisions.
7. Emotions do not overwhelm me when I make personal decisions.
8. I often think about my personal past.
9. There can be amusing elements even in very difficult life situations.
10. I enjoy listening to a variety of musical styles besides my favourite kind.
11. I have dealt with a great many different kinds of people during my lifetime.

12. I am “tuned” in to my own emotions.
13. I reminisce quite frequently.
14. I try and find a humorous side when coping with a major life transition.
15. I enjoy sampling a wide variety of different ethnic foods.
16. I have experienced many moral dilemmas.
17. I am very good at reading my emotional states.
18. Reviewing my past helps me gain perspective on current concerns.
19. I am easily aroused to laughter.
20. I often look for new things to try.
  21. I have seen much of the negative side of life (e.g., dishonesty, hypocrisy).
  22. I can freely express my emotions without feeling like I might lose control.
  23. I often recall earlier times in my life to see how I’ve changed since then.
  24. At this point in my life, I find it easy to laugh at my mistakes.
  25. Controversial works of art play an important and valuable role in society.
  26. I have lived through many difficult life transitions.
  27. I am good at identifying subtle emotions within myself.
  28. Recalling my earlier days helps me gain insight into important life matters.
  29. I often use humour to put others at ease.
  30. I like being around persons whose views are strongly different from mine.
  31. I’ve personally discovered that “you can’t always tell a book from its cover”.

32. I can regulate my emotions when the situation calls for it.
33. I often find memories of my past can be important coping resources.
34. Now I find that I can really appreciate life's little ironies.
35. I'm very curious about other religious and/or philosophical belief systems.
36. I've learned valuable life lessons from others.
37. It seems I have a talent for reading other people's emotions.
38. Reliving past accomplishments in memory increases my confidence for today.
39. I can make fun of myself to comfort others.
40. I've often wondered about life and what lies beyond.

## 7.2 ADULT SELF-TRANSCENDENCE INVENTORY

We would like to know whether your view of life is different today than it was five years ago. We would appreciate your reading the statements listed below and indicating the extent to which you agree.

Disagree strongly	Disagree	Agree	Strongly agree
1	2	3	4

\_\_\_ 1) I am more likely to engage in quiet contemplation.

\_\_\_ 2) I feel that my individual life is part of a greater whole.

\_\_\_ 3) I have become less concerned about other's people opinions of me.

\_\_\_ 4) I feel that my life has less meaning.\*

\_\_\_ 5) I am more focused on the present.

\_\_\_ 6) I feel a greater state of belonging with both earlier and future generations.

\_\_\_ 7) My peace of mind is not so easily upset as it used to be.

- \_\_\_ 8) I feel more isolated and lonely.\*
- \_\_\_ 9) I am less interested in seeking out social contacts.\*
- \_\_\_ 10) My self-importance has decreased as I get older.
- \_\_\_ 11) My sense of self is less dependent on other people and things.
- \_\_\_ 12) I do not become angry as easily.
- \_\_\_ 13) I take myself less seriously.
- \_\_\_ 14) I have less patience with other people.\*
- \_\_\_ 15) I find more joy in life.
- \_\_\_ 16) Material things mean less to me.
- \_\_\_ 17) I am less optimistic about the future of humanity.
- \_\_\_ 18) I feel much more compassionate, even toward my enemies. \*Indicates reverse

scored items

### 7.3 LANDING PAGE

- <http://tenforten.instapage.com/>