Can Leadership Characteristics Predict Perceived Growth when Faced with Stress?

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Abstract

In recent years, positive psychology has devoted an area of study directed at exploring the anecdote "that which does not kill you makes you stronger." This has led to the creation of a field of study known as growth through adversity. Previous research in this area has demonstrated that there are a multitude of personality traits which contribute to growth through adversity, but no known research to date has looked at leadership traits specifically, and how these traits effect growth outcomes. This study sought to fill this void in the literature by attempting to determine whether leadership characteristics are strong predictors of perceived growth when an individual is faced with stressful life circumstances. 139 MacEwan students comprised of 49 males (35.3%) and 90 females (64.7%) completed self-report measures on leadership, stress, and growth outcomes resulting from stress. The relationship between these variables was assessed using an ANOVA *F*-test, which suggested that the overall model was not significant. Forced entry regression suggested that leadership was a statistically significant predictor (r = .189, p=.013), but stress was not (r=.086, with p=.156). Examination of the subscales of the SLP-R determined that 3 of the 7 leadership subscales had statistically significant relationships with growth. These included power and pride (r=.143, p=.047), inspiring leadership (r=.164 p=.027), and visionary leadership (r=.178, p=.018). Possible explanations for the stress being insignificant, limitations of the study, and recommendations for future research were also explored.

Keywords: Leadership, Stress, Growth Through Adversity,

Can Leadership Characteristics Predict Perceived Growth When Faced with Stress?

The notion that psychological stress can affect mental and physical health is very well understood in modern society. Slavich (2016) discussed the Greek myth of Sisyphus, who pushed a boulder up a mountain day after day only to have it roll back down just before getting to the top as a physical metaphor that conjures up the stress inherent in modern society's daily process of finishing a long list of tasks, only to be given more. When a person incurs an overwhelming amount of stress that exceeds their ability to cope, the resulting effect is known as trauma (Stoddard, 2014). Sheikh (2008) defined trauma as any event that profoundly changes an individual's fundamental schemas, ability to manage emotional distress, and their beliefs and goals, while profoundly affecting the individual's life narrative. Trauma effects many people. Trauma researchers report that 20% of North Americans will experience traumatic events at least once a year, while 60% of the population will experience trauma in their lifetime (Meichenbaum, 2012). Between 55-85% of college students self-report having experienced one or more traumatic event (Smyth et al, 2008). Traumatic events have been associated with negative mental health outcomes including posttraumatic stress symptoms, depressive symptoms, and substance abuse (Connor, 2006).

Despite this, a significant number of individuals also report positive changes following trauma (Calhoun & Tedeschi, 1999), suggesting that some individuals can convert the struggles of adverse experience into personal growth (Kleim & Ehlers, 2009). Zoellner and Maercker (2006) postulate that this growth is a result of cognitive reprocessing and rebuilding. Researchers in the field of growth following adversity have employed the terms stress-related growth (SRG) (Park et al. 1996), posttraumatic growth (PTG), and benefit finding (BF) to describe this

cognitive process (Tedeschi & Calhoun, 2004). For simplicity, in this literature review these terms will be synonymized with the term growth through adversity (GTA).

Research has shown that both post-traumatic stress and GTA are common mental health sequelae following traumatic events. Tan (2013) reported that approximately 70% of people cultivate growth-like outcomes even through significant trauma, while the remaining 30% may experience ongoing detrimental effects. Although based on both this research and intuition, these two outcomes appear to be dichotomous, additional research suggests that reaction to adversity is not simply an either-or phenomenon. Magruder and colleagues (2015) examined the relationship of GTA to posttraumatic stress disorder (PTSD) and depression in a group of young Iraqi students with war trauma exposure. This research found that the number of negative events these students experienced was positively correlated with both PTSD and depression scores, and that PTSD and depression were significantly correlated. Interestingly, their findings also suggested that GTA was related to PTSD, but *not* depression. In fact, depression was negatively related to GTA scores. Essentially this research demonstrated that GTA and PTSD are not opposite in nature, but in fact there may be some form of interplay between the two.

Responses to adversity are extremely varied from one person to the next (Morris-Prather et al., 1995). This is not unusual however, as variations in behavior are seen across virtually all aspects of human activity. There is great debate about the mechanism responsible for these individual differences, but one theory that provides some rationale for the process is Trait Theory (Allport & Odbert, 1936). Trait Theory is an approach to studying human personality that identifies and measures the degree to which certain recurring patterns of thought and behavior exist from individual to individual (Allport & Odbert, 1936). The five-factor model of personality is a hierarchy that attempts to organize personality traits in terms of five basic

dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience (Goldberg, 1992). Researchers in the field of positive psychology have suggested that character strengths or trait-like responses such as those present in the five-factor model may buffer adverse effects or promote the positive effects of traumatic events in some individuals (Moran & Nemec, 2013).

Research by Jia and colleagues (2015) exemplifies this. The relationships among the personality trait of extraversion, social support, PTSD and GTA among adolescent survivors of the Wenchuan earthquake were examined. Participants completed the Extraversion Subscale, the Social Support Scale, the Child PTSD Symptom Scale, and the Posttraumatic Growth Inventory (PTGI). Statistical analysis revealed significant correlations among extraversion, social support, PTSD and GTA. Extraversion also had significant indirect effects on PTSD, and GTA. The results also indicated that extraversion had a significant direct effect on GTA and a nonsignificant direct effect on PTSD. This research reinforced an earlier study completed by Zerach (2013). Data was collected on children of veterans, half of whom were prisoners of war (POW) and half were not. The children of POW's as an experimental condition, because this created more stressful life circumstances, termed secondary trauma (ST). Each participant was given the PTSD Inventory (PTSD-I), the PTGI, the Big Five Inventory (BFI), the life events checklist (LEC), and an exposure to stress questionnaire which was developed by researchers to tap into stress caused by their POW father. As expected, the results showed that the ex-POWs' children reported higher levels of both objective and subjective exposure to stress stemming from the parent's behaviors compared with children in the comparison group. What is more important, is his finding that children of ex-POWs' scores also positively correlated to GTA. Furthermore, Extroversion and Openness to the Experience were positively associated with GTA. Together, this literature

suggests that GTA is related not only extraversion, but also openness to experience, another one of the big 5. It also supports the previous study, which suggested that GTA and PTSD are related constructs.

In addition to the broad aspects of personality represented by the five-factor model, other literature has shown that more specific dimensions of personality are also correlated to GTA. Wood and colleagues (2012) explored the interactive properties of two known buffers of combat stress, supportive leadership and GTA, in a military population of recently returned combat veterans. When higher levels of non-commissioned officer (NCO) leadership and benefit finding were reported, fewer PTSD symptoms were endorsed. Additionally, GTA buffered the relationship between combat stress and PTSD symptoms, but only under conditions of supportive officer leadership. Wang and colleagues (2013) had similar findings in an analysis of previous research attempting to build a model of understanding for the mental health of members serving in the United States Armed Forces. A portion of this research included looking at individual level factors (including GTA), unit level factors (including unit leadership), and enterprise level factors (including PTSD awareness) and how these factors interacted. Essentially, these researchers explored the role of resilience and GTA on the mitigation of stress; the positive and negative effects of pre-traumatic risk factors, unit support, and unit leadership on the service-cycle; and the opportunity to improve the system more rapidly by including more feedback mechanisms regarding the usefulness of pre- and post-traumatic innovations to medical leaders, funding authorities, and policy makers. Higher levels of unit leadership and unit support contributed to decreased PTSD symptoms in active service members. For example, higher officer leadership and higher unit support could mitigate lower levels of family/social support throughout the service-cycle. Their model also suggested that high levels of unit leadership and

unit support may mitigate the stigma previously associated with seeking psychological health care and vice versa. Both pieces of literature demonstrate that there is a relationship between external leadership (being led by another) and PTSD symptoms experienced (Wood et al, 2012; Wang et al., 2013).

Yun and colleagues (2014) were more curious about self-leadership. Data was collected from cancer patients from seven hospitals in Korea. Self-leadership competency was measured using the 7HP (7 Habits Profile); GTA resulting from the cancer diagnosis using the PTGI; health-related quality of life was measured using the Korean version of the Short Form 36 (SF-36) questionnaire. Their findings demonstrated that self-leadership could be associated as a critical factor with health behavior, GTA, and health-related quality of life among patients with cancer. Self-leadership may enable patients with cancer to proactively focus on overcoming cancer and, thereby promote their health, GTA, and health related quality of life. This previous research is all indicative of leadership as a construct having some relationship with growth from adversity.

While many studies have focused on other types of leadership, one type of leadership that has not been clearly demonstrated to have a direct correlation with GTA is servant-leadership. Van Dierendonck (2011) discusses a servant-leader as one who is a servant first, with the natural longing to serve others being of primary interest, followed by the conscious choice to lead. The main difference between a servant-leader and a traditional leader is that a servant-leader focuses primarily on the well-being of people and the communities to which they belong, while traditional leadership generally involves the accumulation and exercise of power. Although not directly linked with GTA, previous research suggests that servant-leadership is linked to the five-factor personality traits discussed previously. Politis and Politis (2012) investigated which of the

five-factor personality traits would have the greatest impact on each of the descriptors of servant-leadership. participants' extraversion, negative affectivity, agreeableness, conscientiousness and openness to experience was assessed using Goldberg's (1992) 40 paraphrased items for the five factor model's traits. Servant-leadership was also measured using Page and Wong's (2000) SLP-R scale. Statistical analysis indicated that the characteristics of agreeableness ($r = 0.58$), conscientiousness ($r = 0.58$), openness to experience ($r = .61$) and extraversion ($r = .40$) were strong predictors of servant-leadership behaviours. In turn suggesting a strong relationship between servant-leadership, and the big five personality traits.

The literature has thus far demonstrated two indirect links between servant-leadership and GTA. It appears that GTA is correlated to some of the five-factor model personality traits, and that some of these five-factor traits are also correlated to servant-leadership. Although there has been no direct study of servant-leadership and its relationship with GTA, research on other types of leadership, including external and self-leadership have demonstrated a correlation between these types of leadership and growth following adversity, but also PTSD. These results intuitively make sense, as the literature also suggests that PTSD and GTA are not on the opposite end of a continuum as one might expect, and are also correlated. Figure 1 represents a summary of the findings discussed from the current literature. It also demonstrates that no direct link between servant-leadership and GTA has been shown in the current research literature. The inverse relationship however, has been demonstrated in Mills dissertation (2012) which explored how trauma in childhood could influence leadership qualities later in life. Among several other findings, her research suggested that these individual's childhood adversity had manifested into a proclivity for leadership.

Previous research has identified several ways that GTA has been beneficial. As such, it is important that this concept be further explored, as there may be additional benefits that may be discovered. Dissecting and exploring the correlates of GTA enables the field of psychology to gain a better understanding of it, which could eventually lead to implementing findings in a way that benefits society. That said, there are current gaps in the GTA literature, and the current research sought to fill one of these gaps by determining if servant-leadership characteristics could predict perceived growth when faced with stress, as there is currently no other literature on this topic to the best of our knowledge.

Stress and Growth

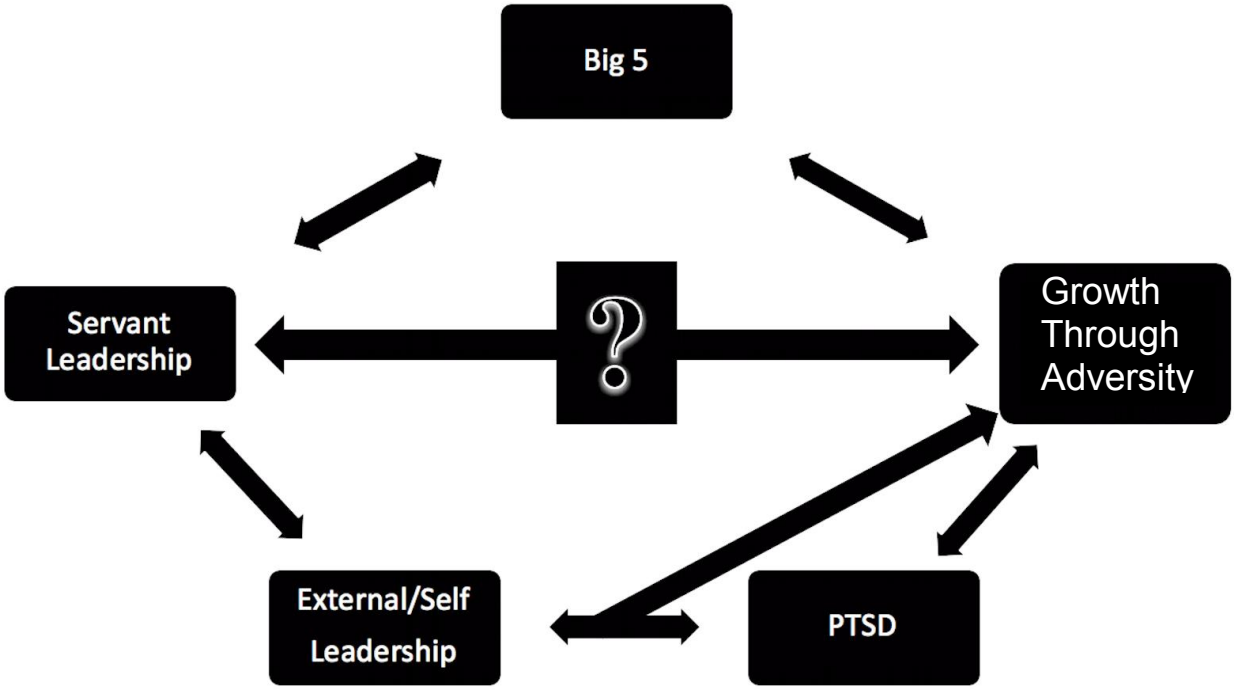

Figure 1. Visual representation of current literature findings relating GTA to leadership.

Methods

Research participants

The code for this study was posted on SONA, which is MacEwan University's psychology research site, from September 1, 2016 until December 1, 2016. The students were incentivized to complete the survey, with a 2% course credit directly applied to their grade for participating. Research findings by Pennebaker and colleagues (1990) demonstrated that university students (especially first year students) are subject to large levels of stress, and so this was deemed an acceptable population to use as a subject pool.

The original sample consisted of N=214 introductory psychology undergraduate students at MacEwan University. From this original sample, 3 did not consent to take part in the study, 57 participants did not record an event identified as the most stressful one they experienced from the SRRS, and 15 did not complete all the measures to entirety. Removing these subjects resulted in a final sample that consisted of n=139 participants with a composition of 49 males (35.3%) and 90 females (64.7%).

Measures

The Social Readjustment Rating Scale (SRRS). The SRRS is a standardized measure of the total impact of a wide range of common stressors, which measures participants' individual levels of stress (Holmes & Rahe, 1967). Each of the listed life events is assigned a value in life change units (LCU) which have been chosen to reflect the relative amount of stress the event causes in the population studied when the scale was developed. The SRRS includes 43 life events, such as "Death of a close friend" or "Divorce" (see SRRS in Appendix), each scored from 0 to 100 LCU. A cumulative score ranging between 0 and 149 has been associated with no significant health problems related to stress; a subject scoring 300 LCU or higher is considered

to be under major stress and to have an 80% chance of illness or health change (Holmes & Rahe, 1967). This scale was selected as it identifies a wide range of common stressors consistent with what might happen in a student's life. Komaroff and colleagues (1968) validated this as an adequate measure across cultures and race within the United States, and it was also validated across several cultures outside of the United States (Masuda & Holmes, 1967; Woon et al., 1971). In addition, Gerst and colleagues (1978) tested the reliability of the SRRS, and found that rank ordering remained extremely consistent both for healthy adults (r = .89-.86) and psychiatric patients (r = .70-.91).

The Servant Leadership Profile Revised (SLP-R). The SLP-R is a 62-item self-report questionnaire that was designed to measure both positive and negative leadership characteristics based on 7 factors: empowering and developing others, power and pride (vulnerability and humility, if scored in the reverse), serving others, open participatory leadership, inspiring leadership visionary leadership, and courageous leadership (Page & Wong, 2000). This measure consisted of a 7 point Likert scale questions, such as "I seek to serve rather than be served" (See SLP-R in Appendix) which included strongly disagree, disagree, neutral, agree, and strongly agree. This scale has demonstrated effectiveness and looks at several potential aspects of servant-leadership and will allow each of these factors of leadership to be examined in relation to stress related growth. This scale was selected as according to Wong and Davey (2007) It has achieved significant use in servant-leadership studies, reporting that the SLP-R has been used by more than 100 organizations and universities for research and evaluation purposes. Page and Wong (2000), also determined the alpha coefficients for each of the seven scales, and the result were values which ranged from .656-.802. In our opinion the high number of factors within the scale

would allow us to cover all the potential types of leadership, considering the population itself has many different types of leaders.

The Stress Related Growth Scale (SRGS). The SRGS is a 50-item self-report questionnaire that asks participants to rate the extent to which they have experienced positive changes in response to a stressful life event in the following three domains; personal resources, social relationships, and coping skills. Questions such as "I learned to be a more optimistic person" (see Appendix D) are answered by selecting 0 (not at all), 1 (somewhat), or 2 (a great deal). Growth is a very multifaceted concept, and this scale yields several measures allowing a more detailed analysis. There are many scales that measure growth, but the SRGS was used for two main reasons. First, according to Park and colleagues' (1996) study using college students the SRGS has acceptable internal and test-retest reliability, with $\alpha = .94$ and a two-week test retest reliability of .8. This research also suggested that scores on this measure are not influenced by social desirability. Also, the SRGS is related to stressful, rather than traumatic, life events and this study was more concerned with common life stressors, making the SRGS a superior choice for the purpose of generalizability.

Procedure

The present study was completed online. Students voluntarily selected our study after seeing the title *Leadership characteristics and responses to stress* on the MacEwan SONA research website. Before beginning the study, participants were shown the Informed Consent Form which outlined the purpose, information about what each scale measured, the risks and benefits of the study, and provided information about confidentiality and anonymity (see Appendix A). This also informed them that they could withdraw from the study at any time if they felt uncomfortable, as well as provided contact information for both primary researchers

involved in the study. Participants were also told that if they wished to follow up on the study, they could do so by contacting researchers with the information provided. Following all this information were two icons representing a willingness to participate in the study, or a refusal to participate. Participants were instructed to select the icon of indicating their choice. If participants selected not to participate, they were taken to the debrief form (see Appendix E) where they were thanked and received their course credit. If participants selected the box that said they agreed with participating, the study began. In addition, they were instructed that they could stop during any point of the survey by simply exiting the study, with no risk of penalty while still receiving credit for participating.

The first portion was a brief demographic questionnaire, used to determine gender, and age of each participant. The study always began with SRRS, as these results were needed to answer the other two scales effectively. For this measure participants were instructed to indicate whether the items in the list had occurred in the past 12 months or not, and if any event had happened more than once, to list this item, and the amount of times it had occurred with the last 12 months at the end of the list of questions. Participants were then prompted to identify the event that in their opinion was the most stressful as they read through the list of common stressors, as this information would be required for the scales that followed. Participants simply selected yes or no for each of the events listed. At the end of the list of items, there was a small prompt which served as an additional reminder, asking participants if they had selected their most stressful item from the list. If participants recorded no as an answer or did not answer this section, their data was removed from the analysis. This was necessary as the research sought to determine how individuals may have grown from a particular stressor, and in effect in their SRGS responses could have reflected growth that occurred by as a result of other means that was

not listed. The LCU values associated with each participant's responses were totaled into a value corresponding to the total impact of all stressful events that have occurred in their life over the past year (see Appendix B). The SLP-R and the SRGS were then presented in a random order, to control for order effects. For the SLP-R, participants were asked to indicate their agreement or disagreement with an extensive list of items which described their attitudes and practices as a leader be selecting the option that accurately reflected their leadership practices. Additional instructions stated that if one had not ever held any leadership position that they were to answer as if they were hypothetically in a position of authority (see Appendix C). For the SRGS participants were instructed to rate growth outcomes, which resulted from the stressful event they had previously selected in the SRRS. Following the final survey, participants received a debriefing form. This form thanked them for their participation, and gave them instructions in case the study had distressed them. It also repeated the contact information if they desired to follow up or list potential concerns they had, and outlined that the project had been approved by the ethics committee, and gave contact information for anyone inquiring about issues they might have had with the ethics of the study.

Results

Statistics for each individual test, as well as the overall model were analyzed using SPSS. The SRRS, displayed strong internal consistency, with Cronbach's α= .97. The mean score on this measure was $\bar{x}$ = 55.89 (*SD* = 23.526). As for the SRGS, internal consistency was also acceptable with α = .85. The mean on this measure was $\bar{x}$ = 69.29 (*SD*=5.479). The SLP-R also demonstrated excellent internal consistency with a Cronbach's α = .94. The mean on this measure was $\bar{x}$ = 326.32 (*SD*=34.146). The overall model was evaluated using hierarchical regression analysis. ANOVA F-test analysis revealed that in the overall model *F*= 2.858, and

p=.061at 2 degrees of freedom. R^2 for the model was .04. There was also a significant correlation between leadership scores and growth (*r*=.189, *p*=.013). This analysis also suggested that stress was not significant within the model (*r*=.086, with *p*=.156). Refer to figures 2 and 3 respectively for a visual representation of these relationships. Examination of the subscales of the SLP-R determined that 3 of the 7 leadership subscales were statistically significantly related to growth, including power and pride (*r*=.143, *p*=.047), inspiring leadership (*r*=.164 *p*=.027), and visionary leadership (*r*=.178, *p*=.018). Empowering others (*r*=.125, *p*=.071), serving others (*r*=.104, *p*=.113), open leadership (*r*=.123, *p*=.074), and courageous leadership (*r*=.061, *p*=.236) were not significant.

Figure 2. Partial regression plot of SRGS scores vs. SLP-R scores

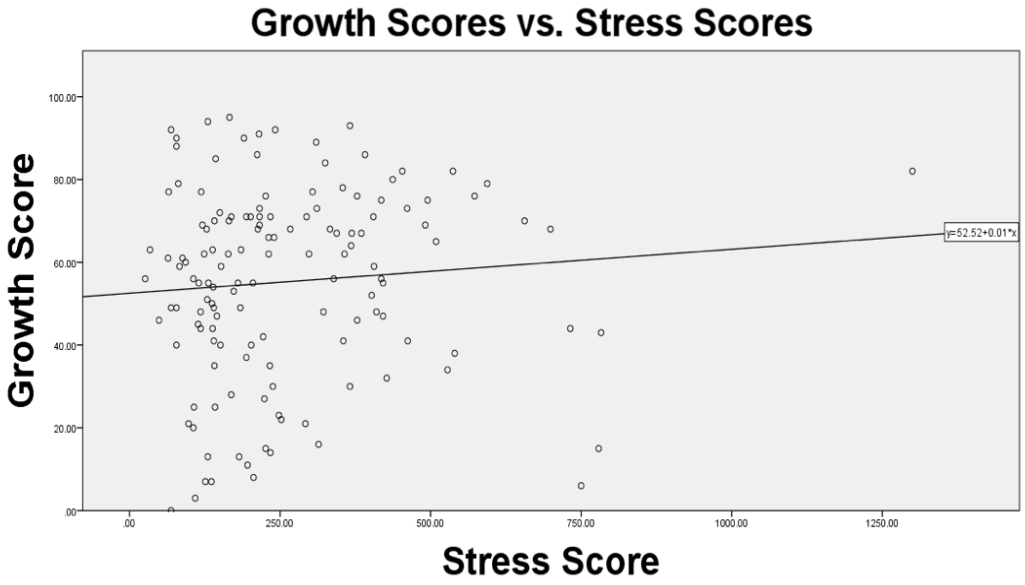

Figure 3. Partial regression plot of SRGS scores vs. SRRS scores

Discussion

The findings of this study revealed that the overall proposed model using leadership and stress as predictor variables for growth scores was not supported. Despite this, scores on the leadership scale were significantly related to growth (r = .189, p=.013). An r^2 value of .04 suggests that although stress and the overall model was insignificant, 4% of the variability in SRGS scores could be attributed to leadership scores. Although 4% seems like a small percentage, this is a significant finding considering the multitude of factors that all contribute to GTA, such as social support (McMillen et al., 1997), spirituality (Cadell et al., 2003), extraversion, openness (Zerach, 2015), and optimism (Prati & Pietrantoni, 2009). Deeper analysis determined that that the visionary, and inspiring leadership as well as power and pride subscales were significant.

There are many potential explanations for the correlations between visionary and inspirational leadership scores and growth scores, as both individual and complimentary factors.

A visionary leader is one who can articulate a sense of purpose (Parco-Tropicales & de Guzman, 2014) and can imagine desirable futures, while knowing how to bring these into existence (Meindl, 1993). This statement agrees with the definition put forth by Page and Wong (2000) who conceptualized a visionary leader as one with a strong sense of mission who can articulate a clear sense of purpose and direction. Vision provides orientation and meaning for leaders and their teams. It helps them to focus their energies and engage in the task at hand (Martin et al., 2014). One can look to the example of Mahatma Gandhi, who is looked upon as one of the greatest visionary leaders of all time. His vision had him constantly changing as a man, and learning from his experiences (Tandon & Singh, 2013). Gandhi exemplified how maintaining one's vision allows one to persevere through adverse circumstances, which in turn may allow the achievement of goals and growth as a person.

The relationship between inspirational leadership and growth scores can be explained through an exploration of the link between inspirational leadership and social relationships. Conger and Kanugo (1998) discussed an inspirational leader as one who can instill confidence, intrinsic motivation, and trust in others. Page and Wong (2000) also described an inspirational leader as one who is able to promote trust, mutual understanding and team spirit, as well as rally others around a common goal. By having these abilities, an inspirational leader can form strong social relationships with others. One could propose this as the mechanism involved in the relationship between inspirational leadership and growth, as one of the three domains of growth measured by the SRGS is in fact social relationships. Essentially, being an inspirational leader could foster one's ability to create social relationships, and in turn plays a role in the experience of growth.

The relationship between growth and inspirational leadership as well as visionary leadership can also be understood by exploring how these two types of leadership are related to each other. Shamir and colleagues (1993) outlined how having vision will in turn inspire followers. Adding to this, Conger and Kanugo (1998) discussed the inverse relationship, stating that inspirational leaders can articulate a vision that is based on strongly held ideological values which effectively energize people and allows them to identify with this vision. Inspirational leaders can have these effects on followers and organizations as a whole, and this is primarily because of their visionary communication abilities. Research has also to synthesized visionary and inspirational leadership under the title of transformational leadership (Bass, 1990). Bass (1990) defined transformation leadership as a style of leadership involving working with subordinates to identify needed change and create a vision to guide the change using inspiration. He stated that transformational leadership occurs when the leader takes a visionary position and inspires people to follow. These leaders also motivate people to buy into their vision and work towards it, as well as build strong trust based relationships with people. It would make sense to propose that these types of leadership could all help motivate one not only to persevere until their goal is attained, but also to build social relationships. This research suggested that both factors have been demonstrated to contribute to growth.

The power and pride subscale being significant intuitively make sense if one considers the definitions of these constructs. Lönnqvist and colleagues (2011) discuss power as a value of self-enhancement, and Vocabulary.com (n.d.) describes pride as a feeling of happiness that comes from achieving something. Poggi and D'Errico (2012) employ the term "Fiero" to describe the pride experienced and expressed in the moments following a personal triumph over adversity. It appears that these terms represent a sort of personal elevation, which is one way of

conceptualizing what growth is (Poggi & D'Errico, 2012). One can visualize the prototypical ambitious person as someone who seeks power or as trying to achieve growth in some way. Considering personal resources was one domain of growth measured in the SRGS, it makes sense that someone who scores high on a measure of power and pride would also score high on the growth measure.

Although SRGS scores demonstrated a correlation with the previously discussed subscales of leadership, the lack of statistical significance in the correlations between growth and the other subscales can also be attributed to way that the SRGS measures growth. The SRGS was selected for its correspondence to stressful life circumstances, rather than a traumatic event. The issue with this measure is that it just looks at growth of the individual. This is problematic, as in a sense it is geared more towards the growth that a traditional leader would experience. Recall Van Dierendonck (2011) discussing the main difference between a servant-leader and a traditional leader being that a servant-leader focuses primarily on the well-being of people and communities to which they belong, while traditional leadership generally involves the accumulation and exercise of power. This is reinforced by the fact that the power and pride subscale was significant. In addition, Wong and Page's work (2003) on the opponent process theory postulates that servant-leadership and power and pride work in opposition to each other, which also adds strength to this argument. As such, current findings are suggestive that the serving others subscale is not correlated to these specific domains of growth, but that is not to say that they would be insignificant to growth if growth was measured in a different way.

This argument may also explain why the empowering and developing others, open participatory leadership, and courageous leadership (integrity and authenticity) subscales were not significantly related to growth. Leadership styles are different, but they can also be strongly

related to one another. Wong and Page (2003) discussed how servant-leadership incorporates the ideals of empowerment, and participatory management into a leadership philosophy. Servant-leadership also requires the courage of intentional vulnerability and the voluntary surrender of one's ego. Considering empowering others, open participatory leadership, and courageous leadership are so strongly related to servant leadership, one could argue that it makes sense that these types of leadership are not significantly related to growth, considering the serving others subscale was not. In other words, much like argued previously for servant leadership the fact that they are not significantly correlated growth as measured by the SRGS, does not mean they are not related to growth as a construct.

In the realm of stress, it does seem unusual that stress was not a significant predictor for growth, considering it has been well established in the literature that these two constructs are correlated (Cadell et al., 2003; Tedeschi & Calhoun, 1996; Calhoun & Tedeschi 1999; Jia et al., 2015 Magruder et al., 2015). There are a however, several possible explanations for these findings. In the partial regression plot of the growth score vs. stress score (See Figure 3), it can be seen that as stress scores increase the amount of variability in growth scores seems to reduce and taper off, with scores staying closer to the mean. This may suggest that some other variable that was unaccounted for is at play here, such as one of the many personality traits discussed in Trait Theory (Allport & Odbert, 1936).

The Inverted-U Model (Yerkes & Dodson, 1908) offers another potential explanation. Previous research has suggested that there is a curvilinear relationship between adverse circumstances (such as PTSD symptoms) and growth, meaning that either too much or too little adverse circumstance would not be conducive to growth (Levine et al., 2008; Kleim & Ehlers 2009; McLean et al., 2013). Holmes and Rahe (1967) suggest in the SRRS that a total of 150 or

less in considered a low level of stress in life, resulting in a low probability of developing a stress-related disorder. Considering that the mean score was $\bar{x}$= 55.89 for the SRRS, the participants on average fell into the low level of stress category, and it would be reasonable to propose that they may not have experienced enough stress to see the benefits of growth. Although there were significant findings, there were several methodological issues in the research design that may have had a significant impact on the results.

In addition to the flaws in previously described, there were also other issues that contributed to shortcomings in the results. One significant source of error came from the power calculation that was done a priori. To predict the number of participants that would be necessary to achieve a power of .8, an estimate of the anticipated r^2 value was necessary. As the literature on this is virtually non-existent speculation of what this value could be was required. .15 was selected to represent a medium effect size. Calculations suggested that to achieve a power of .8 with 2 predictor variables and an estimated r^2 of .15, 140 participants would be necessary. Post hoc analysis adjusted the r^2 value with the actual effects size (.04), which revealed that 241 participants would have been required to achieve a power of .8. By only using 139 participants, our power was only .57, which essentially means that if there was an effect, we only had a 57% chance of seeing it in our data.

Unfortunately, the scales used presented a methodological weakness as well. The problem with the SRGS as discussed previously was the fact that it only measured 3 domains of growth, when there are many other ways in which one can grow following adversity which may have gone undetected. Another obvious issue with regards to the measures was the prompt that required participants to identify the event from the list of life stressors in the SRRS that they felt was most stressful for them. Many of the participants did not do so properly, and as a result data

from many participants had to be disregarded. The actual SRRS items could be considered a source of error as well. Using this measure limits life stressors to those listed, when clearly there may have been other life stressors that were more significant in participants lives. If participants could respond to the SRGS based on their reflection about this unlisted stressful, their responses on the SRGS may have changed.

Summary

The goal of this study was to determine if leadership characteristics and stress could predict perceived growth when faced with stressful life events in MacEwan students. Previous research on growth through adversity, and leadership indirectly suggested that leadership and stress could be significant predictors for growth, but no known study to date had studied these factors in combination. This study sought to do so, and the results determined that leadership was a significant predictor variable for growth scores, but stress was not. In effect, while there was a significant correlation between the SLRP scores and the SRGS scores, the overall model was insignificant.

There were several shortcomings in the study design which essentially came down to the measures selected and the number of participants. Future research could do several things to improve upon this study design. To begin with, now that an approximate r^2 is known, a larger participant pool could be recruited to satisfy power requirements. In addition, new measures to determine levels of GTA experienced could be utilized that capture more multifaceted aspects of growth. For example, The Psychological Well-Being-Posttraumatic Changes Questionnaire is an 18-item self-report questionnaire that asks participants to rate the extent to which they have changed in six domains of psychological well-being as the result of experiencing a highly stressful life event. The six domains are self-acceptance, autonomy, purpose in life, relationships,

sense of mastery, and personal growth (Joseph et al., 2014). As it appeared that low stress levels in the subjects were a problem, one solution could be prescreening participants and only allowing those with more elevated stress levels to continue. The issue pertaining to the prompt for selecting the stressful event in the SRRS could also be corrected by using more direct language so participants knew exactly what they were doing and why they were doing it. Not limiting stressors to those listed in the SRRS when answering the growth questionnaire, as well as potentially using a different measure to determine the level of stress may also improve the quality of the research. Another issue that could be quickly resolved by an additional prescreen is the issue of leadership. Although participants were instructed to envision themselves in a leadership role if they never have been in such a position, they may not have been able to do so effectively. Screening for participants who have been in a leadership position before may prove effective in this regard. In addition, adding an additional scale to determine levels of leadership would add strength to research findings. An example would be the Servant Leadership 28 item (SL-28) measure (Liden et al., 2008) which specifically measures servant-leadership characteristics.

Although this is just one piece of research, further studies expanding on these current findings may have the potential for meaningful implication in society, as it appears that leadership qualities are correlated with growth outcomes. Aside from the small correlation to GTA found in this study, leadership also has numerous other benefits. Wong and Davey (2007) discuss how people who possess high levels of leadership also very have elevated levels of productivity, vision, intellect and knowledge, people skills, heart, courage, self-knowledge and overall character. They also identify leaders as being great team builders, motivators, and communicators. Considering the many benefits of leadership including GTA outcomes, virtually

all populations stand to benefit from implementing leadership into their lives. This could take multiple forms. For example, it could look as simple as altering parenting practices to encourage the development of leadership skills, or building in more opportunities for children to grow their leadership qualities as they go through school. It could also take a more extreme form, such as creating programs for certain populations more prone to adverse circumstances, such as students, or more intense cases such as emergency personnel and members of the armed forces. Previous research has demonstrated that proactive intervention programs can be efficacious and practical in this field. For example, Casey (2011) discussed the Comprehensive Soldier Fitness program as a preventive program that seeks to enhance psychological resilience among all members of the Army community, which includes soldiers, family members, and Department of the Army civilians. It has been shown to help these individuals face life's adversities including combat and prolonged separation from loved ones by providing evidence-based training. This suggests that there is potential for a similar prevention program (geared towards leadership qualities rather than resilience in this case) could be effective for increasing GTA.

Growth is a very multifaceted construct, and there are a multitude of factors such as leadership qualities that contribute to whether or not an individual experiences GTA. It is important that the correlates of GTA be further studied in order to try and achieve a deeper understanding of this concept. Once this knowledge base is established, it can be effectively disseminated to society in numerous ways, such as changing child rearing practices or implementing programs with this information in mind. Determining how the components of GTA work together will allow people to modify their behaviors and effectively live a life geared towards growth. Rather than allowing adversity to act as a major setback, GTA allows one to see

these obstacles as the building blocks for success and promotes the mindset that the strength only comes after the struggle.

Compliance with Ethical Standards

The study was performed in accordance with and approved by the ethics committee at MacEwan University.

Conflict of Interest

Authors declare no conflict of interest.

Informed consent

Informed consent was obtained from all individual participants included in the study.

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Appendix A

Consent Form

Researcher(s): Cody Cobler, Mr., Honours Student in Psychology at MacEwan University, 780- 307-7931, coblerc2@mymacewan.ca
Sean Rogers, MA, Registered Psychologist, Instructor, Department of Psychology, MacEwan University, 780-497-4541, Rogerss10@macewan.ca

Purpose of the Research:
We are exploring the relationship between personality characteristics associated with leadership and the perception of positive changes (growth) when faced with stress. Indirect relationships have been shown between these two constructs and we are attempting to determine whether or not there is a direct correlation between them.

Procedures:
The study takes place entirely online through this secure website hosted by online using Qualtrics Labs, Inc., a survey software company that is hosted out of Provo, Utah and USA. Confidentiality of information is subject to limitations

If you agree to participate, you will be asked a few brief questions, which will be used to determine your gender, age, and year of study. Following this you will be administered 3 longer questionnaires in a random order. These are the Social Readjustment Rating Scale (SRRS), the Servant Leadership Profile-Revised (SLP-R), and the Stress Related Growth Scale (SRGS).

The SRRS is a standardized measure of the impact of a wide range of common stressors, which will measure your individual levels of stress. Each of the listed life events is assigned a value in “life changing units” which have been chosen to reflect the relative amount of stress the event causes. You will simply be asked to respond “yes” or “no” corresponding to the events that have or have not occurred in your life over the past year.

The SLP-R is a 62-item self-report questionnaire that was designed to measure leadership characteristics. You will be asked to respond on a scale of 1 (Strongly disagree) to 7 (Strongly Agree) to a series of statements related to how you interact with others in a leadership capacity.

The SRGS is a 50-item self-report questionnaire that will ask you to rate the extent to which they have experienced positive changes as a result of the most stressful life event that occurred in the last year. A series of statements describing specific changes will be rated from 0 (not at all) to 2 (a great deal) indicating how true each statement is for you.

We will be running approximately 150 students, and the study should take approximately 45 to 60 minutes of your time. Please feel free to ask any questions about the procedures and goals of the study and your role as a participant by contacting the researchers using the phone numbers or emails given above.

Funded by: N/A

Potential Risks:
As a participant in this study, you will be asked to answer questions regarding some common stressors you may have experienced in the last year, which may be considered personal and disturbing as it is a reminder of the stressors that have occurred. There is a small risk that participants may experience psychological or emotional discomfort upon answering these questions. There are no physical risks associated with this study.

Potential Benefits:
You are invited to participate in a research study in the Department of Psychology at MacEwan University. The study aims to establish whether or not leadership qualities are an accurate predictor of self-perceptions of growth when faced with stressful life circumstances. This is very beneficial if our hypothesis proves to be true, as modern society has numerous instances where individuals are exposed to extremely high stress situations, for example emergency personnel, armed forces, and even university students. In reflecting about the stressful events that have occurred over the last year you may have greater awareness about the amount of stress in your life.

Compensation:
Each participant will receive 2% course credit upon completion of the study. Details about how credit is awarded are described in your course outline, and you may contact the research pool coordinator, Danielle Streimer (psychologyresearch@macewan.ca), if you have any additional questions related to course credit.

Confidentiality/Anonymity:
All personal and general information will be kept anonymous and in a confidential location. The data collected will not be associated with you personally in any way. All data will be stored on a secure server that only the researchers will have access to. Downloaded files will be stored on a secured computer that is only accessed by the researchers. If findings were made public, they will not include any information that makes you identifiable.

Data will be collected using Qualtrics Labs, Inc., and all data is stored on the company's server in Provo, Utah, USA until it is deleted by the Primary Investigator on his account. The Department of Psychology has had a contract with Qualtrics for several years, and successfully conducted many online survey studies. All data will be accessed only by the Primary Investigator, and data files are completely anonymous as IP addresses and response IDs are not recorded during data collection. At this point, anonymous data will be shared only with the Co-Investigator for the purposes of data analysis.

Data will be collected via self-report measures that will remain anonymous. Results from self-report measures will be used to compare other participants to one another to see if there are any effects.
Completely anonymous data will be stored on a secured computer for 7 years to allow for future analysis. All data will be securely deleted after that time.
Names will only be used to provide course credit for the study

Right to withdraw:
Your participation is voluntary and you can answer only those questions that you are comfortable with. If you are uncomfortable with this subject matter or the questions being asked, you are free not to participate or to withdraw at any time without any negative repercussions.

You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort.

As the data collected is anonymous, you will not be able to withdraw your data following your participation in this study. We have no way of matching your personal responses to your identification.

Should you wish to withdraw, there will be an alternate measure given.

Follow up:
If you have any further questions or want to obtain results for the study, please contact any of the researchers:

-Sean Rogers may be contacted via email: rogerss10@macewan.ca or telephone 780-497-4541.
-Cody Cobler may be contacted via email: coblerc2@mymacewan.ca.

Questions or Concerns:
If you have any questions or concerns, please contact the researcher(s) using the information provided above.

This project has been approved on ethical grounds by the MacEwan University Research Ethics Board on June 6, 2016. Any questions regarding your rights as a participant may be addressed to the Board at 780-633-3274 or REB@macewan.ca).

Documenting Consent: By consenting you do not waive your rights to legal recourse in the event of any research related harm.

By clicking on the link below and completing and submitting the questionnaire, your free and informed consent is implied and shows that you understand the above conditions of participation in this study.

Please click the appropriate box:
Begin Choices w/o choice groups

- I agree to participate in this study. I understand that my participation is voluntary and that I am free to skip questionnaire items I do not wish to answer. I also understand that I am free to stop participating altogether.
- I do not agree to participate in this study. I understand that my choice not to participate will be confidential and that there is no penalty for choosing not to participate.

Appendix B

SRRS

SRRS

Please indicate whether or not the items in the list have occurred in your life **in the past 12 months.** If any event has happened more than once, list this item, and the amount of times it has occurred with the last 12 months at the end of the list of questions.

As you are reading this list, try and identify the event that in your opinion was the most stressful, as you will need this to answer the following question

	Yes	No
Death of Spouse	○	○
Divorce	○	○
Marital Separation from Mate	○	○
Detention in Jail or Other Institution	○	○
Death of a close family member	○	○
Serious personal injury or illness	○	○
Marriage	○	○
Loss of employment/Fired	○	○
Marital reconciliation	○	○
Retirement	○	○
Change in health of a significant family member	○	○
Pregnancy	○	○
Difficulties with sexual intercourse	○	○
Gaining a new family member	○	○
Business readjustment (merger, company bankruptcy, etc.)	○	○
Change in financial state	○	○
Death of a close friend	○	○
Career change	○	○
Increase in amount of arguments with significant other	○	○
Home mortgage over $100 000	○	○
Foreclosure on mortgage or loan	○	○
Increased responsibility at work place	○	○
Child leaving home	○	○
Conflict with inlaws	○	○
Outstanding personal achievement	○	○

Significant other starting or stopping work	○	○
Beginning or ending school	○	○
Change in living conditions	○	○
Revision of personal habits	○	○
Issues with employer/boss	○	○
Change in work hours/conditions	○	○
Change in residence	○	○
Change in Schools	○	○
Change in recreation	○	○
Change in religious activities	○	○
Change in social activity	○	○
Mortgage or loan of less than $ 100 000	○	○
Change in sleeping habits	○	○
Change in number of family get-togethers	○	○

Events that have occurred multiple times?

Did you identify which of these you feel is most stressful?

○ Yes

○ No

Appendix C

SLP-R

SLP-R

Please use the following scale to indicate your agreement or disagreement with each of the statements in describing your own attitudes and practices as a leader. **If you have not held any leadership position in an organization, then answer the questions as if you were in a position of authority and responsibility.** There are no right or wrong answers. Simply rate each question in terms of what you really believe or normally do in leadership situations.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. To inspire team spirit, I communicate enthusiasm and confidence.	○	○	○	○	○	○	○
2. I listen actively and receptively to what others have to say, even when they disagree with me.	○	○	○	○	○	○	○
3. I practice plain talking - I mean what I say and say what I mean	○	○	○	○	○	○	○
4. I always keep my promises and commitments to others	○	○	○	○	○	○	○
5. I grant all my workers a fair amount of responsibility and latitude in carrying out their tasks	○	○	○	○	○	○	○
6. I am genuine and honest with people even when such transparency is politically unwise	○	○	○	○	○	○	○
7. I am willing to accept other peoples ideas whenever they are better than mine	○	○	○	○	○	○	○
8. I promote tolerance, kindness, and honesty in the work place	○	○	○	○	○	○	○
9. To be a better leader, I should be front and center in every function in which I am involved	○	○	○	○	○	○	○
10. I create a climate of trust and openness to facilitate participation and decision making	○	○	○	○	○	○	○
11. My leadership effectiveness is improved through empowering others	○	○	○	○	○	○	○
12. I want to build trust through honesty and empathy.	○	○	○	○	○	○	○
13. I am able to bring out the best in others.	○	○	○	○	○	○	○
14. I want to make sure that everyone follows orders without questioning my authority	○	○	○	○	○	○	○
15. As a leader, my name must be associated with every initiative	○	○	○	○	○	○	○
16. I consistently delegate responsibility to others and empower them to do their job	○	○	○	○	○	○	○
17. I seek to serve rather than be served	○	○	○	○	○	○	○
18. To be a strong leader, I need to have the power to do whatever I want without being questiones	○	○	○	○	○	○	○
19. I am able to inspire others with my enthusiasm and confidence in what can be accomplished	○	○	○	○	○	○	○
20. I am able to transform an ordinary group of individuals into a winning team	○	○	○	○	○	○	○
21. I try to remove all organizational barriers so that others can freely participate in decision making	○	○	○	○	○	○	○
22. I devote a lot of energy to promoting trust, mutual understanding, and team spirit	○	○	○	○	○	○	○
23. I derive a great deal of satisfaction in helping others succeed	○	○	○	○	○	○	○
24. I have the moral courage to do the right thing, even when it hurts me politically	○	○	○	○	○	○	○

25. I am able to rally people around me and inspire them to achieve a common goal	○	○	○	○	○	○	○
26. I am able to present a vision that is readily and enthusiastically embraced by others	○	○	○	○	○	○	○
27. I invest considerable time and energy in helping others overcome their weaknesses and develop their potential	○	○	○	○	○	○	○
28. I want t have the final say on everything, even areas where I don't have the competence	○	○	○	○	○	○	○
29. I don't want to share power with others because they may use it against me.	○	○	○	○	○	○	○
30. I practice what I preach	○	○	○	○	○	○	○
31. I am willing to risk mistakes by empowering others to "carry the ball"	○	○	○	○	○	○	○
32. I have the courage to assume full responsibility for my mistakes and acknowledge my own limitations	○	○	○	○	○	○	○
33. I have the courage and determination to do what is right in spite of difficulty or opposition	○	○	○	○	○	○	○
34. Whenever possible, I give credit to others	○	○	○	○	○	○	○
35. I am willing to share my power and authority with others in the decision making process	○	○	○	○	○	○	○
36. I genuinely care about the welfare of people working with me	○	○	○	○	○	○	○
37. I invest considerable time and energy equipping others	○	○	○	○	○	○	○
38. I make it a high priority to cultivate good relationships among group members	○	○	○	○	○	○	○
39. I am always looking for hidden talents in my workers	○	○	○	○	○	○	○
40. My leadership is based on a strong sense of mission	○	○	○	○	○	○	○
41. I am able to articulate a clear sense of purpose and direction for my organizations future	○	○	○	○	○	○	○
42. My leadership contributes to my employee's/colleagues personal growth	○	○	○	○	○	○	○
43. I have a good understanding of what is happening inside the organization	○	○	○	○	○	○	○
44. I set an example of placing group interests above self interests	○	○	○	○	○	○	○
45. I work for the best interests of others rather than self.	○	○	○	○	○	○	○
46. I consistently appreciate, recognize, and encourage the work of others	○	○	○	○	○	○	○
47. I always place team success above personal success	○	○	○	○	○	○	○
48. I willingly share my power with others, but I do not abdicate my authority and responsibility	○	○	○	○	○	○	○
49. I consistently appreciate and validate others for their contributions	○	○	○	○	○	○	○
50. When I serve others, I do not expect any return	○	○	○	○	○	○	○
51. I am willing to make personal sacrifices in serving others	○	○	○	○	○	○	○
52. I regularly celebrate special occasions and events to foster group spirit	○	○	○	○	○	○	○
53. I consistently encourage others to take initiative	○	○	○	○	○	○	○
54. I am usually dissatisfied with the status quo and know how things can be improved	○	○	○	○	○	○	○
55. I take proactive actions rather than waiting for events to happen to me	○	○	○	○	○	○	○
56. To be a strong leader, I need to keep all my subordinates under control	○	○	○	○	○	○	○
57. I find enjoyment in serving others in whatever role or capacity	○	○	○	○	○	○	○
58. I have a heart to serve others	○	○	○	○	○	○	○
59. I have great satisfaction in bringing out the best in others	○	○	○	○	○	○	○
60. It is important that I am seen as superior to my subordinates in everything	○	○	○	○	○	○	○
61. I often identify talented people and give them opportunities to grow and shine	○	○	○	○	○	○	○
62. My ambitions focuses on finding better ways of serving others and making them successful	○	○	○	○	○	○	○

Appendix D

SRGS

SRGS

Rate how much you experienced each item below as a result of the item you would rate as most stressful from the list you were just given.

Please respond to each item with either: 0 (not at all), 1 (somewhat), or 2 (a great deal).

	0: Not at All	1: Somewhat	2: A Great Deal
1. I developed new relationships with helpful others.	○	○	○
2. I gained new knowledge about the world	○	○	○
3. I learned that I was stronger than I thought I was	○	○	○
4. I became more accepting of others	○	○	○
5. I realized I have a lot to offer other people	○	○	○
6. I learned to respect others' feelings and beliefs	○	○	○
7. I learned to be nicer to others	○	○	○
8. I rethought how I want to live my life	○	○	○
9. I learned that I want to accomplish more in life	○	○	○
10. My life now has more meaning and satisfaction	○	○	○
11. I learned to look at things in a more positive way	○	○	○
12. I learned better ways to express my feelings	○	○	○
13. I learned that there is a reason for everything	○	○	○
14. I developed/increased my faith in God	○	○	○
15. I learned not to let hassles bother me the way they used to	○	○	○
16. I learned to take more responsibility for what I do	○	○	○
17. I learned to live for today, because you never know what will happen tomorrow	○	○	○
18. I do not take most things for granted anymore	○	○	○
19. I developed/increases my trust in God	○	○	○
20. I feel freer to make my own decisions	○	○	○
21. I learned that I have something of value to teach others about life	○	○	○
22. I understand better how God allows things to happen	○	○	○
23. I learned to appreciate the strength of others who have had a difficult life	○	○	○
24. I learned to not "freak out" when a bad thing happens	○	○	○

25. I learned to think more about the consequences of my actions	○	○	○
26. I learned to get less angry about things	○	○	○
27. I learned to be a more optimistic person	○	○	○
28. I learned to approach life more calmly	○	○	○
29. I learned to be myself and not try to be what others want me to be	○	○	○
30. I learned to accept myself as less than perfect	○	○	○
31. I learned to take life more seriously	○	○	○
32. I learned to work through problems and not just give up	○	○	○
33. I learned to find more meaning in life	○	○	○
34. I changed my life goals for the better	○	○	○
35. I learned how to reach out and helps others.	○	○	○
36. I learned to be a more confident person	○	○	○
37. I learned not to take my physical health for granted	○	○	○
38. I learned to listen more carefully when others talk to me	○	○	○
39. I learned to be open to new information and ideas	○	○	○
40. I now better understand why, years ago, my parents did/said certain things	○	○	○
41. I learned to communicate more honestly with others	○	○	○
42. I learned to deal better with uncertainty	○	○	○
43. I learned that I want to have some impact on the world	○	○	○
44. I learned that it is okay to ask others for help	○	○	○
45. I learned that most of what used to upset me were little things that are not worth getting upset about	○	○	○
46. I learned to stand up for my personal rights	○	○	○
47. A prior relationship with another person became more meaningful	○	○	○
48. I became better able to view my parents as people, not just parents	○	○	○
49. I learned that there are more people that care about me than I thought	○	○	○
50. I developed a stronger sense of community/of belonging/that I am part of a larger group	○	○	○

Appendix E

Debriefing

Form

Thank you for your time and participation in this study exploring the relationship between personality characteristics associated with leadership and the perception of positive changes (growth) when faced with stress.

If you are experiencing any distressing thought or feelings following participation in this study, please contact MacEwan Counselling Services 780-497-5063 for support.

Please remember that if you have any questions or concerns about the study or your participation that you may contact the researchers. You may also contact them if you are interested in the final results of the study:
Cody Cobler, Mr., Psychology, MacEwan University, 780-307-7931, coblerc2@mymacewan.ca Sean Rogers, MA, Registered Psychologist, Psychology, MacEwan University, 780-497-4541, Rogerss10@macewan.ca

This project has been approved on ethical grounds by the MacEwan University Research Ethics Board on June 6, 2016. Any questions regarding your rights as a participant or any concerns you have regarding the ethics of this study may be addressed to the Board at 780-633-3274 or REB@macewan.ca.