LEAD YOURSELF, LOCALLY AND GLOBALLY: THE VALIDATION OF THE GERMAN SELF-LEADERSHIP QUESTIONNAIRE FOR USE IN THE UNITED STATES

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ABSTRACT

The current two studies empirically validated a multi-dimensional questionnaire of self-leadership. In study 1, a sample of 251 employees and students completed the German Self-leadership Questionnaire (GSLQ) that measures the use of (1) constructive thought self- leadership strategies (and associated sub-dimensions (1.1.) time and task management, (1.2.) self-activation, and (1.3.) goal-setting and pursuit), (2) natural reward self-leadership strategies (and associated sub-dimensions (2.1.) emotional regulation, and (2.2) self-motivation); (3) effective behavior self-leadership strategies (and associated sub-dimension (3.1.) behavior change and (3.2.) rewarding work environments); and physical vitality self-leadership strategies (and associated sub-dimensions (4.1.) physical exercise and (4.2) healthy nutrition). Explorative factor analyses yielded seven subdimensions with a total of 34 items to be included in a revised form of the German Self-leadership Questionnaire (RGSLQ). In study 2, 202 participants responded to the RGSLQ as well as to Houghton's (2012) Abbreviated Self-Leadership Questionnaire (ASLQ). Confirmatory factor analyses of the RGSLQ lends support to self-leadership dimensions that are congruent with the ASLQ yet adds a dimension of self-activation. Satisfactory concurrent validity with the ASLQ (except of for the self-activation scale) and convergent validity with work satisfaction and life satisfaction, respectively, were established. Implications for research and practice are discussed.

KEYWORDS: Self-leadership, validation, questionnaire

INTRODUCTION

In recent years, the concept of self-leadership has received quite a bit of attention by researchers (e.g., Neck & Manz, 1996; Müller, 2004a; Neck & Houghton, 2006, Neck et al., 2017). Self-leadership is defined as "a self-influence process through which people achieve the self-direction and self-

motivation necessary to perform (Neck & Houghton, 2006, p.271). Self-leadership happens through the use of various self-leadership strategies. In most of the existing studies, self-leadership strategies are grouped into three types or categories: strategies to create (1) constructive thoughts, (2) natural rewards, (3) effective behavior (Prussia, Anderson, & Manz, 1998; Houghton & Neck, 2002; Müller, 2006; Georgianna, 2009).

Studies by Dishman, Motle, Sallis, Dunn, Birnbaum, Welk, et al. (2005) inspired self-leadership researchers in Europe to explore and measure an additional dimension of self-leadership called "physical vitality": In their study, Dishman et al. (2005) used questionnaire items such as „I say positive things to myself about physical activity", „I set goals to do physical activity", „I do things to make physical activity more enjoyable", and „I make backup plans to be sure I get my physical activity". Dishman et al. (2005) found separate cognitive and behavioral strategies as first order factors. These factors, however, showed to be substantially correlated representing a single second-order factor which Dishman et al. (2005) interpreted as "physical self-management". A study of German employees yielded empirical support of "physical vitality" as a fourth dimension of self-leadership (Müller, Georgianna, & Roux, 2010).

The four types of strategies are briefly described below:

(1) Strategies to create constructive thoughts.
Strategies that focus on constructive thoughts were identified as most important for successful self-leadership (Neck & Manz, 1996). Constructive thought strategies include strategies to improve time and task management, self-activation, and goal-setting (e.g., Gollwitzer, 1996, Carr et al., 1989). In general terms, constructive thoughts result from cognitive and volitional processes that are intentionally activated and used to plan, prepare, and monitor goal-related activities and endeavors. Other constructive thought strategies include the facilitation of self-dialogue and use of mental imagery (i.e., what individuals mentally imagine the results of behaviors prior to their performance to be) (see for example, Neck and Houghton 2006; Neck and Manz, 2013).

(1.2.) Strategies to manage time and tasks. According to Müller (2004a), one type of time and task management strategy is to create awareness which task to tackle first (e.g., by reviewing the tasks at hand and prioritizing the most important ones). Another strategy is to know at the beginning of the day which tasks to engage in at what time of the day: individuals who were aware of their "peak performance time" (e.g., morning) performed better on memory tasks during their peak time, and on creative or implicit memory tasks during their "off peak time" (Hahn et al., 2012) Another type of strategy to manage time and tasks is to deliberately disengage from perfectionism. A third type of strategy is to complete urgent tasks well in advance.

(1.3.) Strategies to set and pursue goals. A third type of constructive thought strategy addresses setting and pursuing goals through imagining the goal's attainment along with its desired outcomes. Students who imagined how they would perform were more successful than students who did not mentally rehearse (e.g., Carr et al., 1989; Neck & Houghton, 2006; Neck & Manz, 2010). Such mental rehearsal can improve performance because "mental practice" and physical movements share a common neural subspace in the brain (Nikhilesh & Ganguly, 2018). To generate positive beliefs and expectations, another constructive thought strategy consists of using positive self-talk and mental images (Manz, 1986; Neck & Manz, 1992). Examples of positive self-talk are self-affirmation statements such as, "I am learning to be more and more capable"; "I am enough"; "I choose to be present in what I do". Individuals using self-affirmation scripts are instructed to choose the self-affirmation that is meaningful to them, write it down, say out loud, and reflect on the self-affirmation throughout the day. Using this type of constructive thought management was proposed to lead to enhanced individual and organizational performance (Neck & Manz, 1992).

(2) Natural reward strategies.

Strategies that focus on creating natural rewards are a second category of self-leadership strategies. For example, if tasks are conceptualized as opportunities to learn and to gain personal experience, they are perceived naturally rewarding as reflected in high engagement despite of challenges and difficulties (e.g., Mueller & Dweck, 1998). Intrinsic motivation to accomplish the task may follow. Additional examples of natural reward strategies are those that increase self-motivation (e.g., by actively exploring or creating conditions that provide appealing sensations such as pride and joy) and those that adjust the interpretation of emotional states as positive (e.g., excitement, challenge). In other words, one can create naturally rewarding circumstances by consciously focusing on pleasant (instead of unpleasant) aspects of a given activity so that the activity itself became more attractive and enjoyable (Manz & Neck, 2004; Manz & Sims, 2001). In addition, natural reward strategies allow individuals to (re)-interpret their emotional challenges as opportunities for learning, personal and professional growth, and develop healthy emotional control and positive momentum to become proactive instead of lethargic (Müller & Braun, 2009).

(2.1.) Strategies to regulate emotions. One type of strategy to increase emotional control is to change the interpretation of an emotion. The first step is to increase awareness how negative emotions are triggered. Such awareness can be generated by taking a note of the specifics of a situation to determine which thoughts, behaviors, circumstances, and physiological sensations are associated with an emotion. A second step is to interpret an emotion in a different way. If harmless situations trigger negative emotions because people misattribute physiological arousal as a sign of fear, re-interpreting the emotional state in positive terms (e.g., excitement, challenge) may result in a sense of emotional control (Buhle et al., 2014; Müller & Braun, 2009; Georgianna, 2015). Experiments have examined how specific regulatory strategies relate to behavioral, experiential, and physiological outcomes (e.g.,

Gross, 2015). Neuroimaging studies have shown that effective emotional regulation is supported by the brain's prefrontal systems, which hosts human capacities such as decision making, strategy based reasoning, and complex problem solving (Buhle et al., 2014).

(2.2.) Strategies to motivate oneself. One strategy to motivate oneself is to actively explore or create conditions that provide appealing sensations such as pride and joy. This occurs by consciously focusing on pleasant (instead of unpleasant) aspects of a given activity. As a result, the activity itself becomes more attractive and enjoyable (Manz & Neck, 1991; Manz & Sims, 2001). A second type of self-motivation strategy is to perceive challenging circumstances as opportunities for learning as well as personal and professional growth. Interpreting situations in such a way can generate momentum and activate proactive behaviors (Müller & Braun, 2009). In an experiment by Mueller and Dweck (1998), students did not have enough time to finish a difficult task. Depending on the instructions given by the teacher, working on a task was perceived as either a learning experience or as a test of task-related competencies. It was found that the students were more engaged, less anxious, persisted longer, and performed better when instructions emphasized the learning experience than with the instructions described the task as a test of task-related competencies.

(3) Effective Behaviors

Strategies that focus on effective behaviors target individuals' self-awareness and executive activities (D'Intino et al., 2012). The systematic self-observation of behaviors (e.g., by keeping a diary or behavior log, Georgianna, 2007a; Manz & Neck, 2004; Manz & Sims, 1980, 2001) and the observation of role-models who show successful ways of problem solving (Neck & Manz, 2010) and the flexible adaptation of behaviors to situational change (Müller, 2006) are examples of effective behavior strategies.

3.1. Behavioral awareness strategies. One strategy to increase behavioral awareness consists of the systematic observation of one's own behavior over a period of time, for example, by engaging in long-term journaling or record-keeping (e.g., a behavior log, Georgianna, 2007b; Manz & Neck, 2004; Manz & Sims, 1980, 2001). This strategy has been useful in predicting individuals' short-term or day-to-day actions, sense of emotional well-being during relaxation interventions (Brown & Ryan, 2003), and the effects of self-leadership training sessions on participants (Stewart, Carson & Cardy, 1996). Research to date demonstrates that people with high levels of behavioral awareness were more confident, interested and excited. They performed better, persisted longer, and demonstrated more creativity than people who were subject to either external or unconscious control (Ryan & Deci, 2000). A second example of an effective behavior strategy is to deliberately observe role-models who show successful ways of problem solving (e.g., Neck & Manz, 2010). A third type of effective behavior strategies addresses self-initiated adaptation of behaviors to attain better results (Müller, 2006). Adaptation is enhanced if new behaviors are practiced in training-like settings or real-life simulations:

People who sufficiently practiced a task performed better than people without practice (e.g., Perkins & Salomon, 1992). Even better results are obtained when new behavior is not only performed by motor activity but also by mental simulation and imagination (Neck & Manz, 2010).

(3.2.) Strategies to create and approach rewarding work environments. One example of a strategy to create work environments that inspire successful behaviors and productivity is to use check lists that indicate how the work environment should be set up for optimal performance, e.g., as to noise levels, light, floor design, and room temperature (Newsham et al., 2008; Ornstein, 1989). Another strategy is to guide a team in setting and pursuing team goals that positively influence work performance and productivity while decreasing the risk of procrastination (Van Hooft & Van Mierlo, 2018). A third strategy is to guide a team in creating rewards conducive to the team's performance (Pearce & Manz, 2005).

(4) Physical vitality

The benefit of physical vitality has mostly been studied with regards to its positive impact on physical and mental health as well as coping with stress (e.g., Burton, Hoobler & Scheuer, 2012; Gerber et al. 2010; Craike et al. 2010; Mackay and Neill 2010; Crone et al. 2009; Gerber & Pühse 2009; Gerber et al. 2010; Cooper & Berwick 2001). To further investigate the previous claims by Mueller et al. (2009) as a fourth type of self-leadership strategies, Georgianna et al. (2020) found that physical vitality strategies were a fourth type of strategies that was especially important for individuals with low self-leadership: If individuals used other self-leadership strategies to a lesser extent, their use of self-leadership strategies contributed to their experience of satisfaction with life and work; for individuals who already used self-leadership to a greater extent, using physical vitality strategies did not influence their satisfaction with life and work.

(4.1.) Physical exercise. One type of vitality strategy is to engage in healthy exercising. Physical exercise seemed to buffer the negative effects associated with stress (Gerber & Pühse, 2009), e.g., critical life events and demands placed on an individual in today's complex work and personal environments (Cooper & Berwick 2001; Gerber et al., 2010). Crone et al. (2005) reported that individuals who exercised more frequently exhibited enhanced coping with all aspects of their life, especially critical life events occurring on the job and at home. Sonnentag and Bayer (2005) found that employees who moderately exercised in the evening reported enhanced positive mood and general well-being.

(4.2.) Healthy food intake and by maintaining a healthy diet (e.g., Georgianna, 2005). Employees' access to healthy nutrition is frequently addressed by organizations' comprehensive wellness programs (Parks & Steelman, 2008). Comprehensive wellness programs ordinarily consist of interventions to increase employees' engagement in physical activity and provide information about

healthy dieting and nutrition. Due to the lack of empirical studies one can only speculate about the outcomes of dietary interventions, such as the sustainability of physical exercise and/or healthy food intake.

STUDY 1

To investigate if the above findings for European individuals would also be applicable to a U.S. population, the current two studies sought to explore and cross-validate the dimensions of self-leadership of Müller's Self-leadership Questionnaire (GSLQ) with U.S. respondents. Study 1 was guided by the following hypothesis:

Measures of constructive thoughts (i.e., time and task management strategies, self-activation strategies, goal-setting strategies), natural rewards (i.e., emotional regulation strategies, motivational strategies), effective behavior (i.e., behavior change strategies, rewarding environment strategies), and physical vitality (i.e., physical activity and healthy food intake strategies) may replicate German findings of self-leadership dimensions in the U.S.

METHOD

Participants

Two-hundred-and-fifty-one individuals participated in the study. The sample consisted of 148 females and 100 male respondents, three respondents declined to state their biological sex. One-hundred-and-thirty-six participants were undergraduate students and 115 respondents were employees. Participants' age ranged from 16 to 66 with a mean age of 25.35 (SD = 11.06). Participants with incomplete answers were excluded from the study.

Measures

Self-leadership. The participants filled out a questionnaire consisting of 40 items with different self-leadership strategies that had to be answered on 4-point-Likert-scales ranging from 1 = "describes me very imprecisely" to 4 = "describes me very precisely". The items were the short version of the German Self-leadership Questionnaire1 (GSLQ) which is a modular instrument developed on the basis of a conceptual framework originally proposed by Müller (2003) und extended by research of Müller (2004b), Müller et al. (2006), Roux (2007), and Müller (2018). The original scales of the GSLQ showed to have construct validity with regard to three dimensions of self-leadership (Müller, 2006). They also have concurrent validity and correlated with criterion measures such as entrepreneurial aptitude (Müller, 2006), self-efficacy (Müller 2004a), proactivity and personal initiative (Roux, 2007).

Items were translated into English by a certified German-English translator. English items were then translated back to German by a native German speaker. This process ensured that the English items adequately reflected the original German item pool. Examples of the English items are given below.

To assess the reliability of the scales coefficients of internal consistency were calculated (Cronbach's alpha; Guttman's lambda(2)).

Constructive Thoughts. Constructive thoughts were measured by 15 items, five items each for time and task management, self-activation, and goal setting. Examples are "With personal projects, I try and set a specific time for starting certain tasks.", "I am generally able to achieve my own goals, even when faced with considerable difficulties". The reliability of the three subscales were good (all three αlphas = .73; lambda(2) = between .58 and .77).

Natural Rewards. Natural rewards were measured by ten items, five item each for emotional regulation, and self-motivation. Examples are "I can find something enjoyable in all working activities", "I am able to put myself into a good mood if necessary" and "I can find interesting aspects even in unattractive activities". The reliability of both subscales was good (αlpha = .82 and .83, respectively; lambda(2) = between .65 and .84).

Effective behaviors. Effective behavior was measured by ten items, five item each for behavior change and rewarding work environments. Examples are "I reward myself when being successful on tasks I have to carry out", "In situations that are strongly self-restricting I look for options with more freedom of action", and "I can create situations that are helpful to perform with successful ends". The reliability of the behavior change scale was low if all 5 items were included, and higher if item 1 was removed (αlphas were .53 and .70, respectively, lamba(2) = between .43 and .58). Thus, a note was made to exclude item 1. The reliability of the rewarding work environments scale was good (αlpha = .70 ; lamba(2) s were between .56 and .70).

Physical vitality. Physical vitality was measured by five items. Examples are "Every day I take opportunities to push my body", "I am always looking for situations where it is fun to unfold physical activity" and "During long and stressful periods of work I pay attention to a healthy food intake". The reliability was acceptable (αlpha = .81; lambda (2)s were between .65 and .82).

Life satisfaction. Life satisfaction was measured using the items "Overall I am satisfied with my life." Participants' responses to the items were on a 4-point Likert-type rating scale, ranging from 1 ("does not apply") to 4 ("does fully apply"). The SWLS showed favorable psychometric properties, including a high internal consistency of $\alpha > .80$ (Pavot & Diener, 1993) and high consistency as well as low specificity (Eid & Diener, 2004).

Work satisfaction. Job satisfaction was measured using one adapted item of the Profile Analysis of Job Satisfaction (PAZ) (Jiménez, 2008) "I am overall satisfied with my work." Response options were on a 4-point Likert-type rating scale, ranging from 1 ("does not apply") to 4 ("does fully apply"). The

PAZ showed favorable psychometric properties (Jiménez, 2003).

Data Analysis

Descriptive statistics. Means, standard deviations, and zero-order correlations of scales measuring physical vitality, self-leadership, life satisfaction, and job satisfaction were computed using the Statistical Program for Social Sciences (SPSS) Version 22.0 for Windows (IBM 2014).

Analyses. The data were analyzed in two steps. During step 1, all measures were correlated to establish the proportions of common and specific scale variance. During step 2, an exploratory factor analysis was conducted to establish the hypothesized dimensionality of self-leadership.

RESULTS

The item scores of two-hundred-fifty-one participants' were entered. All variables and participants' scores were included. The method to determine the number of factors in a dataset was to conduct correlations of all items. Based on how the items correlated with one another, factors that summarized the correlations emerged. All measures were positively correlated, coefficients ranging between $r = 0.16$ and $r = 0.35$. The overall pattern of correlations indicates a substantial amount of common variance, i.e. general self-leadership ability and specific variance, i.e., different dimensions of self-leadership.

To establish the number of sub-scales, Parallel Analysis (PA) was applied (Timmerman, & Lorenzo-Seva, 2011). Parallel analysis (PA) based on minimum rank factor analysis was run with the GSLQ-sub-scales to be explored. Pearson correlation matrices were analyzed using 500 random correlation matrices by permutation of the raw data (Buja & Eyuboglu, 1992).

Next, all items were factor analyzed using Principal Axis Factoring with oblique rotations (according to Kaiser-Guttman normalization). As findings show the five items that measured goal-setting self-leadership loaded on several other factors. Therefore, they were excluded from the original item pool. In addition, item 1 measuring behavioral self-leadership yielded non-significant correlations with items 2, 3, and 5 of the same sub-scale and was also excluded from subsequent analyses. Parallel Analyses were conducted a second time confirming seven factors. Another Principal Axis factor analysis yielded loadings of 34 items on seven factors which were described as (1) time and task management; (2) self-activation; (3) emotional regulation; (4) self-motivation; (5) behavioral adaptation; (6) successful work environments; and (7) physical vitality.

STUDY 2

To cross-validate the findings of study, the RGSQ was given to another sample of U.S. respondents. In addition, criterion validity was tested by including Houghton et al.'s (2012) Abbreviated Self-

leadership Questionnaire (ABSQ). Study 2 was guided by the following two hypotheses:

(1) The dimensions of self-leadership as measured by the RGSQ can be replicated and confirmed by measures of an independent sample of respondents.
(2) The measures of the RGSLQ are concurrently valid with measures of the ABSQ.
(3) The measures of the RGSLQ are convergently valid with work satisfaction and life satisfaction.

METHOD

Participants

The research sample consisted of 205 (N= 205) participants at the age of 18 and above. Participants were recruited from the undergraduate alumni network of one of the researchers and another researcher's newsletter recipients. One e-mail was sent to the alumni network and the newsletter recipients. The e-mail contained an invitation to participate in a study and included a link to the survey that was hosted by Google forms. As potential participants clicked on the Google form link, they were informed about the purpose of the study and then had to complete an informed consent statement prior to accessing the questions. All participants resided in the United States, ranging from 18 to 70 years of age. Sixty-four (31.4%) males, 137 (67.2%) females, and 4 individuals who preferred not to specify their gender participated in this study.

Measures

Self-leadership was measured by thirty-four items from the RGSLQ as described above. In addition, the nine items of the ASLQ by Houghton, Dawley & DilLello (2012) were given with response options on a Likert-type scale from 1 = strongly disagree to 5 = strongly agree. The items measure Behavior Awareness and Volition (BAV1-3), Task Motivation (TM1-3) and Constructive Cognition (CC1-3). Examples are "I establish specific goals for my own performance." And "I visualize myself successfully performing a task before I do it." The coefficient alpha for an overall measure of self-leadership was 0.97.

Reliability statistics were calculated to find the Cronbach's alphas of each subscale (see Table 2).

Table 2 Cronbach's Alphas for Self-Leadership Dimensions

	Dimension of Self-Leadership	Cronbach's Alpha	Number of Items
RGSLQ			
	Time and Task Management	.80	5
	Self-activation	.77	5
	Emotional Regulation	.81	5
	Self-Motivation	.78	5
	Behavior Change	.76	4

	Impact on Work Environment	.78	5
	Physical Vitality	.81	5
ASLQ			
	Goal Setting	.86	3
	Visualization	.70	6

Analysis

Confirmatory factor analysis (CFA) was used to investigate the measurement models of the latent construct of self-leadership. Indicator variables of constructive thoughts were time and task management and self-activation. Indicator variables of intrinsic rewards were emotional self-regulation and self-motivation. Indicator variables of effective behavior were strategies to shape a rewarding environment and change management strategies. Parcels of items were used as indicators of physical vitality and self-activation. Each set of parcels were created by taking the mean of four items each using heterogeneous parceling (Cole et al., 2016) so that each parcel represented all facets of self-leadership. Model fit of the CFA was evaluated by several fit indices provided by the Mplus program: the chi-square value and its associated p-value, the root mean-square error of approximation (RMSEA), the comparative fit index (CFI), and the standardized root mean square residual (SRMR). Good model fit is indicated by a non-significant chi-square-value, RMSEA $\leq$ .05, CFI $\geq$ .95, and SRMR $\leq$ .08 (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003).

To test for concurrent validity, Pearson r correlations were computed for the GRSLQ subscales the ASLQ subscales. To test for convergent validity of the GRSLQ, Pearson r correlation was computed for the GRSLQ, work satisfaction, and life satisfaction.

RESULTS

Two models using Structural Equation Modeling with latent variables were developed to test the RSQL for the its' subdimensions. Model 1 tested the influence of one general factor of self-leadership. Model 2 tested the influence of five subdimensions: (1) Constructive Thoughts (predicted by (1.1) Time and Task Management, (1.2) Emotional Self-regulation); (2) Self-Activation (predicted by (2.1.) Self-Activation Parcels 1&2); (3) Natural/Intrinsic Rewards (predicted by (3.1.) Motivation, (3.2.) Creating Rewarding Environments); (4) Effective Behaviors (predicted by (4.1 Behavioral Management Parcels 1&2); (5) Vitality (predicted by Vitality Parcels 1&2). Mplus estimated the Goodness of Fit statistics as shown in Table 3.

Table 3 Fit Indices of Two Structural Equation Models with One vs. Five Subdimensions of Self-leadership

Model Predictors of Self-leadership	χ^2/df	CFI/TLI	RMSEA (90% CI)	p (RSMEA <=.05)	SRMR	AIC

Model 1	2031.63/ 527	0.42/0.38	0.12 0.12-0.12	0.00	0.011	17420.25
Model 2	49.29/30	0.96/0.94	0.06 (0.03-0.09)	0.32	0.056	4035.22

Note. Model 1 included 1 general factor of self-leadership. Model 2 included (1) Constructive Thoughts; (2) Self-Activation; (3) Natural Rewards; (4) Effective Behaviors; (5) Vitality.

According to the Chi Square and associated p values, RMSEA, and SRMR values, model 2 is more acceptable than model 1.

Figure 1 displays the standardized estimates and associated standard errors for the manifest variables (1) time and task management, (2) emotional self-regulation, (3) self-activation, (4) natural rewards, (5) motivation, (6) creating rewarding environments (7) effective behaviors, and (8) vitality as predictors of the latent dimensions (1) constructive thoughts, (2) self-activation, (3) natural rewards, (4) effective behaviors, and (5) vitality.
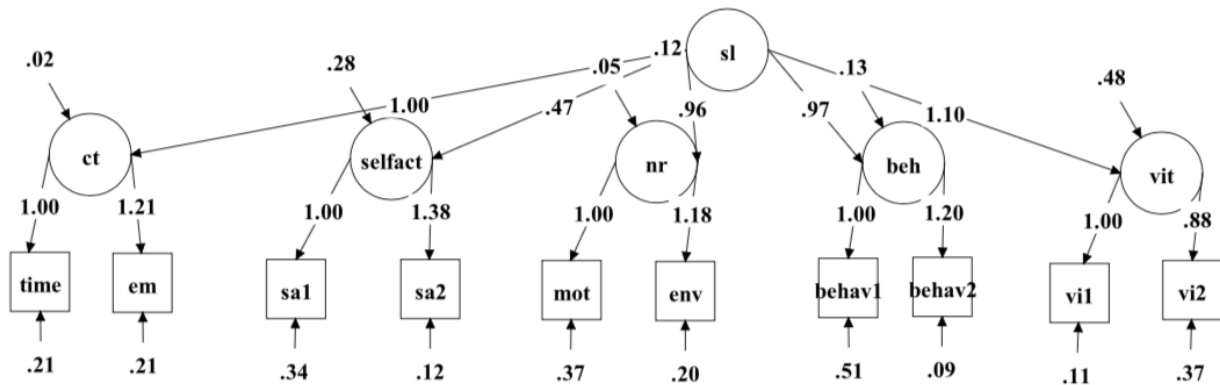
Figure 1

Figure 1. Structural equation model 2 (standardized solution) with five latent variables (ct=constructive thoughts, measured by time=time and task management and em=emotional self-regulation; selfact=self-activation, measured by self-activation parcels 1&2; nr=natural rewards, measured by motivation and creating rewarding environments; beh=effective behaviors, measured by behavior parcels 1&2; vit=vitality, measured by vitality parcels 1&2. All path coefficients of the model were significant (p <.01).

The standardized model results for model 2 show z scores for all standardized factor loadings, all predictors, and all intercept parameters as significant. This means that the construct self-leadership in

study 2 yielded five latent dimensions (1) constructive thoughts, (2) self-activation, (3) natural rewards, (4) effective behaviors, and (5) vitality and eight subdimension (1) time and task management, (2) emotional self-regulation, (3) self-activation, (4) natural rewards, (5) motivation, (6) creating rewarding environments (7) effective behaviors, and (8) vitality.

In line with hypothesis 2, Pearson r yielded a significant positive correlations. Table 5 includes the Pearson r correlations between average subscale scores.

Table 4 Pearson r correlations between average subscale scores

Dimension	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Time & Task Management	1.00								
(2) Self-activation	.26**	1.00							
(3) Emotional Regulation	.43**	.26**	1.00						
(4) Self-Motivation	.28**	-.08	.25**	1.00					
(5) Adjusting Behavior	.25**	.03	.39**	.37**	1.00				
(6) Impact on Work Env.	.40**	.06	.37**	.41**	.36**	1.00			
(7) Physical Vitality	.26**	.12	.34	.29**	.31**	.34**	1.00		
(8) Goal Setting	.56**	.28**	.42**	.27**	.25**	.32**	.33**	1.00	
(9) Visualization	.32**	.01	.30**	.61**	.40**	.42**	.29**	.40**	1.00

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

As seen in Table 4, the RGSLQ subscale time management was positively correlated to the ASLQ subscales goal setting (r=.56) and visualization (r=.32). The RGSLQ subscale self-activation was highly correlated to the ASLQ subscale goal setting (r=.28) and not significantly correlated to visualization (r=.01). Emotional regulation was highly correlated to the ASLQ subscale goal setting (r=.42). The ASLQ subscale goal setting correlates with all RGSLQ subscales. The ASLQ subscale visualization correlates with all RGSLQ subscales, with exception of the self-activation scale. These findings are in line with Houghton et al.'s (2012) observation that self-activation is a distinctly

different facet of self-regulation.

The test of the concurrent validity of the ASLQ and the GRSLQ yielded a high positive correlation (r = 0.63; p < 0.001). The test of convergent validity of the GRSLQ yielded highly significant Pearson r correlations for work satisfaction (r = 0.34; p < 0.001), and life satisfaction (r = 0.27; p < 0.001), respectively.

DISCUSSION

This study tested whether measures of an European approach could be replicated and cross-validated with a U.S. sample of participants. In study 1, factor analyses yielded seven (not eight) distinct subscales of self-leadership: goal-setting items correlated with self-leadership items of other subscales and to be removed from the item pool. In the U.S., goal-setting strategies apparently did not yield a separate sub-dimension of self-leadership. Further exploration of how goal-setting should be reconceptualized and measured seem necessary. Should items be replaced? Is self-lead goal-setting differently understood and practiced in the U.S. due to cultural uniqueness and emphasis pursuing of one's dreams and goals (e.g., Gore & Cross, 2006)? Future studies need to examine the cultural aspects of goal setting and its impact on goal-setting related use of self-leadership.

Study 2 confirmed the measures of seven sub-dimensions of self-leadership and showed significant convergent and concurrent validity of the RGSLQ. Future studies should also investigate the incremental validity–that is, an increase in validity of the self-leadership construct by, for instance, adding additional measures of physical vitality, i.e. tension reduction (see Müller & Lohaus, 2019). Another question for future studies addresses the test-retest reliability to ascertain the stability of the RGSLQ measures over time.

Limitations

One possible limitation of the two studies the nature of a self-reporting survey. Participants may not provide accurate, honest answers. They may not want to provide answers that present them unfavorably. Furthermore, the lack of accessibility of the survey through a weblink only may have led to excluding participants without access to a computer, an electronic device, or the internet. An expansion of this research should include paper surveys to complement the electronic ones, thus creating greater accessibility for potential participants.

Application

The current studies measured physical vitality via physical exercise and healthy nutrition. Future studies of self-leadership should include strategies that targeted the body's relaxation response (e.g., via breathing through mindfulness, meditation, or yoga) since they seemed to decrease employees' high stress levels as well as to improve employees' sleep quality and autonomic balance (Wolever et

al., 2012). Furthermore, the quality of sleep was found to be a major source of vital energy, performance, and health (Czeisler, 2006, 2015). Therefore, strategies to efficiently enhance sleep patterns and wake cycles or circadian rhythms should be included in the development of vitality related items.

As modern economies (including new startups, major corporations, and alliances among global partners (Dress, Lumpkin & McGee, 1999)) increasingly depend on individuals with skills and experiences that induce creative developments, future studies should also examine the role of the four dimensions of self-leadership and innovation, entrepreneurial behaviors (e.g., DiLiello & Houghton, 2006), and the pursuit of new business opportunities (Renko et al., 2015).

Lastly, one should examine the relationship of self-leadership and additional "soft" as well as "hard" work related indicators (e.g., creativity, productivity, mentoring behaviors to name a few). This inclusion of work-related indicators seems needed, especially given the potential costs, both financial and psychological, to organizations and employees when employees' physical and mental health is compromised. Current studies (see, e.g., Neck & Manz, 1996; Müller, 2004a; Neck & Houghton, 2006; Neck et al., 2017) have speculated about the positive benefit of physical vitality strategies on soft as well as hard indicators of work performance. One can look forward to future research providing further insight and recommendations to facilitate optimal physiological and psychological self-leadership.

To apply the current study's findings to today's development of individuals and organizations, the obtained results show that simply providing trainings of self-leadership that target constructive thought, natural rewards, and efficient behavior without including individuals' use of physical vitality may not suffice for creating lasting improvements of individual self-leadership, well-being and subsequent performance. Although individuals may benefit on the job from interventions to increase self-leadership (e.g., job satisfaction, task performance, and stress reduction (e.g., see Neck et al., 2017)), assessing and enhancing individuals' use of physical vitality strategies in addition to facilitating the use of strategies to create constructive thoughts, successful behaviors, and rewarding circumstances seems crucial.

CONCLUSION
The present studies contributed to the current body of self-leadership research. In study 1, 7 of 8 GSLQ subscales as established by European studies were confirmed. In study 2, both U.S. normed items to measure self-leadership, a second one consisting of items measuring self-leadership that were normed with a European sample of respondents replicated previously identified sub-dimensions of self-leadership.

REFERENCES

Brown, K. W., & Ryan, R. M. (2003). The Benefits of Being Present: Mindfulness and Its Role in Psychological Well-Being. Journal of Personality and Social Psychology, 84, 822-848. doi:10.1037/0022-3514.84.4.822

Buhle, J. T., Silvers. J.A., Wager, T. D., Lopez, R., Onyemekwu, C., Kober, H., Weber, J., & Ochsner, K. N. (2014). Cognitive reappraisal of emotion: a meta-analysis of human neuroimaging studies. Cerebral Cortex, 24, 2981–2990. doi:10.1093/cercor/bht154

Buja A., & Eyuboglu, N. (1992). Remarks on parallel analysis. Multivariate Behavior Resolution, 27(4), 509-540. doi:10.1207/s15327906mbr2704_2

Burton, J.P., Hoobler, J. M., Scheuer, M. L. (2012). Supervisor Workplace Stress and Abusive Supervision: The Buffering Effect of Exercise". Journal of Business Psychology, 27, 271-279. doi:10.1007/s10869-011-9255-0

Carr, M., Kurtz, B. E., Schneider, W., Turner, L. A., & Borkowski, J. G. (1989). Strategy acquisition and transfer among American and German children: environmental influences on metacognitive development. Developmental Psychology, 25, 765-771. doi:10.1037/0012-1649.25.5.765

Czeisler, C. A. (2006). Sleep deficit: the performance killer. A conversation with Harvard Medical School Professor Charles A. Czeisler. Harvard Business Review, 84 (10), 53-59.

Czeisler, C. A. (2015). Duration, timing and quality of sleep are each vital for health, performance and safety. Sleep Health, 1(1), 5–8. doi:10.1016/j.sleh.2014.12.008

Cole, D. A., Perkins, C. E., & Zelkowitz, R. L. (2016). Impact of homogeneous and heterogeneous parceling strategies when latent variables represent multidimensional constructs. Psychological Methods, 21, 164–174. doi:10.1037/met0000047

Cooper, C., Berwick, S. (2001). Factors affecting psychological well-being of three groups of suicide-prone prisoners. Current Psychology, 20 (2), 169-182. doi:10.1007/s12144-001-1025-0

Craike, M. J., Coleman, D., & MacMahon, C. (2010). Direct and buffering effects of physical activity on stress-related depression in mothers of infants. Journal of Sport and Exercise Psychology, 32, 23–38. doi:10.1123/jsep.32.1.23

Crone, D., Heaney, L., & Owens, C. S. (2009). Physical activity and mental health. In L. Dugdill, D. Crone and R. Murphy (Eds.), Physical activity and health promotion: evidence-based approaches to practice (1st ed., pp. 198–212). UK: Wiley-Blackwell.

DiLiello, T., & Houghton, J. D. (2006). Maximizing organizational leadership capacity for the future. Toward a model of self-leadership, innovation and creativity. Journal of Managerial Psychology, 21 (4), 319-337. doi:10.1108/02683940610663114

D'Intino, R. S., Goldsby, M. G., Houghton, J. D., & Neck, C. P. (2007). Self-Leadership: A Process for Entrepreneurial Success. Journal of Leadership and Organizational Studies, 13, 105–120. doi:10.1177/10717919070130040101

Dishman, R. K., Motl, R. W., Sallis, J. F., Dunn, A. L., Birnbaum, A. S., Bed- Imo-Rung, A. L., Voorhees, C. C., & Lobe, J. B. (2005). Self-management strategies mediate self-efficacy and physical

activity. American Journal of Preventive Medicine, 29,10-18. doi:10.1016/j.amepre.2005.03.012

Dress, G. G., Lumpkin, G. T., & McGee, J. E. (1999). Linking Corporate Entrepreneurship to Strategy, Structure, and Process: Suggested Research Directions. Entrepreneurship: Theory and Practice, 23 (3), 85-102. doi:10.1177/104225879902300306

Eid, M., & Diener, E. (2004). Global judgments of subjective well-being: Situational variability and long-term stability. Social Indicators Research, 65(3), 245–277. https://doi.org/10.1023/B:SOCI.0000003801.89195.bc

Georgianna, S. (2005). Intercultural Features of Self-leadership. Shaker Press, Aachen, Germany.

Georgianna, S. (2007a). Self-leadership and Goal-striving across Cultures: A Comparison of United States and Chinese Undergraduate Students. Mellen Press: New York, NY. ⌜⌝SEP

Georgianna, S. (2007b). Self-leadership: A cross-cultural perspective. Journal of Managerial Psychology, 22, 569-589. doi:10.1108/02683940710778440

Georgianna, S. (2009). Fostering student success: an exploratory study in English writing classes. The Journal of Applied Research in the Community College, 17, 20-30.

Georgianna, S. (2015). Assessing and Developing Entrepreneurs' Self-Leadership and Super-Leadership. Journal of Entrepreneurial and Organizational Management, 4, 146. doi:10.4172/2169-026X.1000146.

Georgianna, S., Müller, G. F., Schermelleh-Engel, K., & Lohaus, D. (2020). The Effect of Self-leadership and Physical Vitality on Life and Work Satisfaction. International Journal of Research in Commerce and Management Studies, (2)2, 26-42. doi:10.38193/IJRCMS.2020.2023

Gollwitzer, P. M. (1996). The volitional benefits of planning. In P. M. Gollwitzer & J. A. Bargh (Eds.), The psychology of action (287-312). New York: Guilford.

Gerber M., & Pühse, U. (2009). Review article: do exercise and fitness protect against stress-induced health complaints? A review of the literature. Scandinavian Journal of Public Health, 37(8), 801-19. doi:10.1177/1403494809350522.

Gerber, M., Kellmann, M., Hartmann, T., & Pühse, U. (2010). Do exercise and fitness buffer against stress among Swiss police and emergency response officers? Psychology of Sport and Exercise, 11, 286–294. doi:10.1016/j.psychsport.2010.02.004

Gore, J. S., & Cross, S. E. (2006). Pursuing goals for us: Relationally autonomous reasons in long-term goal pursuit. Journal of Personality and Social Psychology, 90 (5), 848-861. doi:10.1037/0022-3514.90.5.848

Gross, J. J. (2015). Emotion regulation: current status and future prospects. Psychol Inquiry, 26, 1–26. doi:10.1080/1047840X.2014.940781

Hahn, C. Cowell, J. M., Wiprzycka, U. J., Goldstein, D., Ralph, M., Hasher, L., & Zelazo, P. D. (2012). Circadian rhythms in executive function during the transition to adolescence: the effect of synchrony between chronotype and time of day. Developmental Science, (15) 3, 408-416. doi:10.1111/j.1467-7687.2012.01137.x

Houghton, J. D., & Yoho, S. K. (2005). Toward a contingency model of leadership and psychological

empowerment: when should self-leadership be encouraged? Journal of Leadership and Organizational Studies, 11(4), 65-83. doi:10.1177/107179190501100406

Houghton, J. D., & Neck, C. (2002). The revised self-leadership questionnaire: Testing a hierarchical factor structure for self-leadership. Journal of Managerial Psychology, 17(8), 672-691. doi:10.1108/02683940210450484

Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling, 6(1), 1–55. doi:10.1080/10705519909540118

Jiménez, P. (2003). The Profile Analysis of Job Satisfaction – Reliability, Validity and Benefits of a new Measurement. Paper presented at the 8th European Congress of Psychology, 6–11 July 2003, Vienna.

Jiménez, P. (2008). Profilanalyse der Arbeitszufriedenheit (PAZ). Manual Wiener Testsystem [Profile Analysis of Job Satisfaction. Test Manual in Vienna Test System]. Mödling: Schuhfried GmbH.

Neck, C. P., & Cooper, K.H. (2000). The fit Executive: Exercise and Diet Guidelines for Enhanced Performance. Academy of Management Executive, 14 (2), 72-83. doi:10.5465/ame.2000.3819307

Mackay, G. J. S., & Neill, J. T. (2010). The effect of "green exercise" on state anxiety and the role of exercise duration, intensity, and greenness: A quasi-experimental study. Psychology of Sport and Exercise, 11(3), 238-245. doi:10.1016/j.psychsport.2010.01.002

Manz, C. C. (1986). Self-leadership: Toward an expanded theory of self-influence processes in organizations. Academy of Management Review, 11, 585-600. doi:10.5465/amr.1986.4306232

Manz, C. C., & Neck, C. P. (1991). Inner Leadership: Creating Productive Thought Patterns. Academy of Management Executive, 5, 87–95. doi:10.5465/ame.1991.4274477

Manz, C. C., & Sims, H. P. Jr. (1980). Self-Management as a Substitute for Leadership: A Social Learning Theory Perspective. Academy of Management Review 5, 361–367. doi:10.5465/amr.1980.4288845

Manz, C. C., & Sims, H. P., Jr. (2001). The new super-leadership. San Francisco, CA: Berret-Köhler.

Mueller, C. M. & Dweck, C. S. (1998). Intelligence praise can undermine motivation and performance. Journal of Personality and Social Psychology, 75, 33-52. doi:10.1037/0022-3514.75.1.33

Müller, G. F., & Braun, W. (2009) Selbstführung Self-leadership. Bern, Switzerland: Huber.

Müller, G. F., Gappisch, C. (2005). Personality types of entrepreneurs. Psychological Reports 96, 737-746. doi:10.2466/pr0.96.3.737-746

Müller, G. F. (2003) Selbstführung [Self-leadership). In G. F. Müller (Ed.), Selbstverwirklichung im Arbeitsleben [Self-actualization at work.], 171-202. Lengerich, Germany: Pabst Science Publication.

Müller, G. F. (2004a). Selbstführungskompetenz: Messung und berufsbezogene Korrelate [Self-leadership competence: measurement and occupation-related correlates]. In B. S. Wiese (Ed.), Individuelle Steuerung beruflicher Entwicklung [Individual regulation of occupational development],

91-104. Frankfurt/Main: Campus.

Müller, G. F. (2004b). Die Kunst, sich selbst zu führen [The art of self-leadership]. Personalführung [Personnel Management], 11, 30-43.

Müller, G. F. (2006). Dimensions of self-leadership: a German replication and extension. Psychological Reports, 99, 357-362. doi:10.2466/pr0.99.2.357-362

Müller, G. F. (2018). Fragebogen zur Diagnose individueller Selbstführungskompetenz (aktualisierte und erweiterte Version) [German Self-leadership Questionnaire (revised and extended update]. Landau: UMBRA.

Müller, G. F. & Lohaus, D. (2019). Self-lead tension release and evaluation of university education. Hochschule Darmstadt – University of Applied Sciences: Schriftenreihe des Darmstädter Instituts für Wirtschaftspsychologie (DIWiP) Nr. 1.

Müller, G. F., Georgianna, S., & Roux, G. (2010). Self-leadership and Physical Vitality. Psychological Reports, 107 (2), 383-392. doi:10.2466/06.10.15.20.PR0.107.5.383-392

Müller, G. F., Orr, L., Hausner, M. B., & Wittmann, R. (2006). Selbstführungsprofil [Se/f-leadership profile] Remchingen: Persolog.

Neck, C. P., & Houghton, J. D. (2006) Two decades of self-leadership theory and research: past developments, present trends, and future possibilities. Journal of Managerial Psychology, 21, 270-295. doi:10.1108/02683940610663097

Neck, C. P., & Manz, C. C. (1992). Thought self-leadership: The influence of self-talk and mental imagery on performance. Journal of Organizational Behavior, 13(7), 681 – 699. doi:10.1002/job.4030130705

Neck, C.P., & Manz, C.C. (1996). Thought self-leadership: the impact of mental strategies training on employee cognition, behavior, and affect. Journal of Organizational Behavior, 17, 445-467. https://doi.org/10.1002/(SICI)1099-1379(199609)17:5<445::AID-JOB770>3.0.CO;2-N

Neck, C. P., & Manz, C. C. (2010). Mastering self-leadership: empowering yourself for personal excellence (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Neck, C. P., & Manz, C. C. (2013). Mastering Self-Leadership: Empowering Yourself for Personal Excellence. 6th ed. Upper Saddle River, NJ: Pearson Prentice Hall.

Neck, C. P., Manz, C. C. & Houghton, J. D. (2017). Self-Leadership – The Definite Guide to Personal Excellence. Thousand Oaks/Cal.: Sage.

Newsham, G. R., Veitch, J. A., & Charles, K. E. (2008). Risk factors for dissatisfaction with the indoor environment in open-plan offices: an analysis of COPE field study data. Indoor Air, 18(4), 271-282. doi:10.1111/j.1600-0668.2008.00525.x

Nikhilesh, N., & Ganguly, K. (2018). Shaping Reality through Mental Rehearsal. Neuron 97(5):998-1000. doi:10.1016/j.neuron.2018.02.017

Ornstein, S. (1989). The Hidden Influences of Office Design. Academy Of Management Executive (08963789), 3(2), 144-147. doi:10.5465/AME.1989.4274765

Parks, K. M., & Steelman, L. A. (2008). Organizational wellness programs: A meta-analysis. Journal

of Occupational Health Psychology, 13(1), 58–68. doi:10.1037/1076-8998.13.1.58

Pavot, W., & Diener, E. (1993). The affective and cognitive context of reported measures of subjective well-being. Social Indicators Research, 28, 1–20. https://doi.org/10.1007/BF01086714

Pearce, C. L., & Manz, C. C. (2005). The new silver bullets of leadership: The importance of self- and shared leadership in knowledge work. Organizational Dynamics, 34, 130-140. doi:10.1016/j.orgdyn.2005.03.003

Perkins, D.N., & Salomon, G. (1992). Transfer of learning. International Encyclopedia of Education, Second Edition. Oxford, England: Pergamon Press.

Prussia, G. E., Anderson, J. S., Manz, C. C. (1998) Self-leadership and performance outcomes: The mediating influence of self-efficacy. Journal of Organizational Behavior, 19, 523-538. https://doi.org/10.1002/(SICI)1099-1379(199809)19:5<523::AID-JOB860>3.0.CO;2-I

Renko, M., El Tarabishy, A., Carsrud, A. L., & Brannback, M. (2015). Understanding and measuring entrepreneurial leadership style. Journal of Small Business Management, 53, (1), 54-74. doi:10.1111/jsbm.12086

Roux, G. (2007). Dimensionalität, Reliabilität und Validität des "Fragebogens zur Erfassung von Selbstführungskompetenz" [Dimensions, reliability, and validity of the German Self-leadership Questionnaire]. Unpublished thesis, Department of Psychology, University of Koblenz-Landau, Campus Landau.

Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being American Psychologist 55(1), 68-78. doi: 10.1037110003-066X.55.1.68

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the Fit of Structural Equation Models Tests of Significance and Descriptive Goodness-of-Fit Measures. Methods of Psychological Research Online, 8, 23-74.

Sonnentag, S., & Bayer, U. V. (2005). Switching off mentally: predictors and consequences of psychological detachment from work during off-job time. Journal of Occupational Health Psychology, 10(4), 393–414. doi:10.1037/1076-8998.10.4.393

Stewart, G. L., Carson, K. P., & Cardy, R. L. (1996). The joint effects of conscientiousness and self-leadership training on employee self-directed behavior in a service setting. Personnel Psychology, 49, 143–164. doi:10.1111/j.1744-6570.1996.tb01795.x

Timmerman, M. E., Lorenzo-Seva, U. (2011). Dimensionality Assessment of Ordered Polytomous Items with Parallel Analysis. Psychological Methods, 16, 209– 220. doi:10.1037/a0023353

Wolever, R. Q., Bobinet, K. J., McCabe, K., Mackenzie, E. R., Fekete, E., Kusnick, C. A., & Baime, M. (2012). Effective and viable mind-body stress reduction in the workplace: A randomized controlled trial. Journal of Occupational Health Psychology, 17(2), 246-258. doi:10.1037/a0027278

Van Hooft, E. A. J., & Van Mierlo, H. (2018). When Teams Fail to Self-Regulate: Predictors and Outcomes of Team Procrastination Among Debating Teams. Frontiers in Psychology, 9, 464. doi: 10.3389/fpsyg.2018.00464

Appendix A: Institutional Review Board Approval
From: Diana Avans, Ph.D. Chair of Institutional Review Board
Address: 55 Fair Dr. Costa Mesa, CA 92626
Email: davans@vanguard.edu

Date: April 7, 2019

To: Melody Foley

RE: "Instrument Validation: Self Leadership in the US"

Dear Melody,

The above referenced human-subjects research project has been approved by the Vanguard University Institutional Review Board. This approval is limited to the activities described in the approved Protocol Narrative. In accordance with this approval, the specific conditions for the conduct of this research are listed below, and informed consent from subjects must be obtained as indicated. All changes (e.g. a change in procedure, number of subjects, personnel, study locations, new recruitment materials, study instruments, etc.) to the approved protocol or consent form first be reviewed and approved by the IRB before they are implemented. Please email the IRB when you have completed your study.

No special conditions.

Sincerely,
Diana Avans

Diana Avans, Ph.D.
Chair, Institutional Review Board

Exempt Review: 04/07/2019

Approval Issued: 04/07/2019	
Expiration Date: 04/08/2022	
IRB ID# 2019SP00050	