Prediction of Soft Skills Self-Efficacy Using Implicit Theory, Grit, and Demographics in the General Population

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Abstract

The U.S. Department of Education (USDoE, n.d.) has encouraged the development of soft skills or employability skills. Previous research has indicated that soft skills can be learned; however, much of the research on this topic has focused on the modality or components of soft skills training (e.g. Tadimeti, 2014). It is not known whether certain psychological constructs contribute to soft skills, which may in turn impact individuals' success in enhancing their soft skills. Therefore, this study aimed to bridge the gap between these findings by assessing the extent to which implicit theories of soft skills, grit, and various demographics might predict soft skills self-efficacy. Participants were recruited through social media and Qualtrics. Data were collected via online questionnaires and analyzed using a multiple linear regression. Results indicated that grit and time spent on related activities predicted soft skills self-efficacy.

Introduction

The idea that skills other than cognitive and knowledge-based skills are important to academic success, as well as to employers, started in the 1990's (Kyllonen, 2013). Since soft skills are highly valued by many employers, researchers have sought to find ways to enhance soft skills through soft skills training programs in college students (e.g. Nayak, 2014) and current employees (Tadimeti, 2014). However, it is unknown whether implicit theory or specific psychological constructs, such as grit, contribute to soft skills development.

Implicit theory refers to the degree to which an individual perceives a skill or attribute to be fixed or changeable (Yeager & Dweck, 2012). Other researchers have applied implicit theory to a variety of attributes such as interests (O'Keefe, Dweck, & Walton, 2018), interpersonal ability (Hui, Bond, & Molden, 2012), and negotiation beliefs and performance (Kray & Haselhuhn, 2007). In these cases, researchers created their own implicit theory assessments for the attribute they were researching. We also created an assessment (the Implicit Theory of Soft Skills Questionnaire, ITSSQ) for each of the four soft skills domains that are measured on the ESSES (communication skills, analytical inquiry, collaboration skills, professional development skills).

Grit is defined as "perseverance and passion for long-term goals" (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087). It is a noncognitive trait-like characteristic that Duckworth and colleagues identified as a predictor for success across multiple studies. For example, in adult samples, grittier participants had higher levels of education and were less likely to make career changes than their less gritty peers. In a study of undergraduates, grittier students had higher GPA scores even though they had lower SAT scores. Indeed, across multiple studies among students grit was not positively correlated with IQ, and it explained greater variance in success outcomes than intelligence (Duckworth et al., 2007).

Therefore, this study sought to assess if implicit theory, grit, or other demographic factors contribute to soft skills development.

Summary of Multiple Regression Results

Grit
ITSSQ communication
Employment status
LOE: writing

Grit
LOE: researching

Grit
ITSSQ collaboration
LOE: interacting

Grit
ITSSQ prof. development
Employment status
LOE: leading

Note: Items shown for each ESSES soft skills quadrant were significant at $p < .05$, $p < .01$ or $p < .001$.
Grit = overall grit score, ITSSQ communication/analytical/collaboration/professional development = overall implicit theory of soft skills questionnaire score, LOE = level of engagement over career, ESSES = employable skills self-efficacy survey.

Methodology

This non-experimental research study explored four specific research questions. Do implicit theory of soft skills, grit, and demographics predict: communication skills self-efficacy (RQ1), analytical inquiry self-efficacy (RQ2), collaboration skills self-efficacy (RQ3), and professional development skills self-efficacy (RQ4) in the general population? To explore these questions, the following questionnaires were used: the Employable Skills Self-Efficacy Survey [ESSES] (Ciarocco & Strohmetz, 2017); the Short Grit Scale [Grit-S] (Duckworth & Quinn, 2009); an implicit theory of soft skills assessment based on previous implicit theory research [ITSSQ]; and a demographic questionnaire to measure sex, age, educational level, race, number of years of employment, number of hours worked per week, type of employment, and level of engagement in soft skills over a career lifetime. Participants were recruited via social media and Qualtrics. Data were collected online by Qualtrics and analyzed using multiple linear regression. The dependent variables were scores from four domains (with sub-scales) on the ESSES.

Results

Results of the multiple linear regression analysis indicated that 53% of variance in **Communication Skills Self-Efficacy** was predicted by grit, implicit theory of communication, full-time, part-time, or self-employed status, and time spent writing over career. Additionally, approximately 34% of variance in **Analytical Inquiry Self-Efficacy** was predicted by grit and time spent researching over one's career. Grit, implicit theory of collaboration, and time spent interacting with other people over one's career predicted approximately 31% of variance in **Collaboration Skills Self-Efficacy**. Finally, approximately 52% of variance in **Professional Development Skills Self-Efficacy** was predicted by grit, implicit theory of professional development, full-time, part-time, or self-employed status, and time spent leading over one's career.

Sample Composition
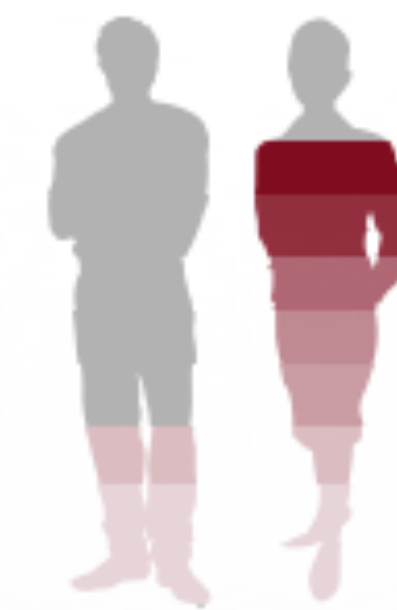
Female: 79%
White: 72%
Age: $M = 35$, $SD = 12.94$
Education: Some college+ 72%
Employment: Full-time 66%
Lifetime employment: $M = 17$, $SD = 12.75$
Hours worked/week: $M = 32$, $SD = 17.74$

Multiple Regression Analysis Predicting ESSES Scores from Grit, Implicit Theory of Communication, Employment Status, and Level of Engagement Over Career in Writing, Speaking and Presenting, and Interacting.

ESSES Communication

Predictor	β	t
GRIT-S	.505	7.428***
ITSSQ Communication	.231	3.551**
Employment Status	-.159	-2.477*
LOE: Writing	-.170	-2.271*
LOE: Speaking/Presenting	-.142	-1.867
LOE: Interacting	-.089	-1.331
F	23.433***	
R²	.533	
R²_adj	.511	

ESSES Analytical

Predictor	β	t
GRIT-S	.347	4.093***
ITSSQ Analytical	.109	1.395
Average hours worked/week	.154	1.895
Ethnicity	-.128	-1.671
LOE: Researching	-.278	-3.697***
F	12.701***	
R²	.339	
R²_adj	.312	

ESSES Collaboration

Predictor	β	t
GRIT-S	.413	5.307***
ITSSQ Collaboration	.172	2.235*
LOE: Interacting	-.174	-2.242*
LOE: Collaborating	-.049	-.631
F	13.818***	
R²	.307	
R²_adj	.284	

ESSES Professional Development

Predictor	β	t
GRIT-S	.599	9.218***
ITSSQ Professional Development	.153	2.445*
Employment Status	-.130	-1.997*
LOE: Leading	-.135	-2.097*
F	33.989***	
R²	.521	
R²_adj	.506	

* = $p < .05$; ** = $p < .01$; *** = $p < .001$
Note. N = 130. GRIT-S = overall grit score, ITSSQ communication/analytical/collaboration/professional development = overall implicit theory of soft skills questionnaire score, LOE = level of engagement over career, ESSES = employable skills self-efficacy survey.

Discussion

This research was intended to be exploratory, being our first attempt to measure the predictability of soft-skills self-efficacy by implicit theory, grit, and demographics in the general population. While the results are open to interpretation, we have some evidence to draw the following conclusions.

Grit appears to be the most important psychological construct in developing soft skills self-efficacy. Grit is a single construct measured by the 2-factor structure of perseverance of effort and consistency of interest (Duckworth & Quinn, 2009). Thus, the finding that grit is associated with all four domains of soft-skills efficacy is underscored by the finding that time spent engaging in related activities positively predicted self-skills self-efficacy. That is, time spent writing over an individual's career predicted communication skills self-efficacy, time spent interacting with others predicted collaboration self-efficacy, time spent researching predicted analytical self-efficacy, and time spent leading others predicted professional development self-efficacy. Additionally, believing one can improve one's skills in a specific area (i.e. implicit theory) seems to aid in the development of communication, collaboration, and professional development skills, but not analytical skills.

Suggestions for future studies would include measuring other variables that may also contribute to soft skills development. For example, grit or its sub-factor of perseverance of effort has been associated with several variables that may also contribute to skill development such as self-control (Muenks Wigfield, Yang, & O'Neal 2017), work ethic (Meriac, Slifka, & LaBat, 2015), and conscientiousness (Credé, Tynan, & Harms, 2017). Additionally, it may be valuable to develop and test an evidence-based program for soft-skills development. Such a program could be incorporated into a college curriculum to better prepare students for employment upon graduation.

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