

*Learning Accelerator Research Paper*

# The HEXACO Model in Education and School-to-Work Transitions: Current Applications and Future Directions

Sam T. McAbee

Alex Casillas

Jason D. Way

Feng Guo

2019

McAbee, S.T., Casillas, A., Way, J. D. & Guo, F. (2019). The HEXACO Model in Education and School-to-Work Transitions: Current Applications and Future Directions. *Zeitschrift für Psychologie*, 227(3), 174-185

This is a draft of a manuscript entitled *The HEXACO Model in Education and School-to-Work Transitions: Current Applications and Future Directions* and the copy of record is with Hogrefe (<https://doi.org/10.1027/2151-2604/a000376>).



**The HEXACO Model in Education and School-to-Work Transitions:  
Current Applications and Future Directions**

Samuel T. McAbee

Bowling Green State University

Alex Casillas

ACT, Inc.

Jason Way

ACT, Inc.

Feng Guo

Bowling Green State University

**Abstract**

have long been interested in examining relationships between personality traits and performance in applied settings. Although the Big Five remains the most prevalent model of personality, studies adopting an alternative personality model known as the HEXACO Model have been increasing in the past decade (e.g., Ashton et al., 2004; Lee & Ashton, 2004). The aims of the present paper are three-fold: First, we systematically review the literature on the HEXACO model and its applications in educational and work settings. Second, we introduce an emerging applied personality framework for use in educational research and practice, the ACT Behavioral Skills Framework (Casillas, Way, & Burrus, 2015), which is based on the HEXACO model. Third, we offer a number of suggestions for how future research can continue to refine the development and application of the HEXACO model in educational and organizational research and practice.

*Keywords:* Personality, HEXACO, academic performance, work performance, behavioral skills.

## **The HEXACO Model in Education and Work: Current Applications and Future Directions**

Over the past several decades, researchers have increasingly been interested in exploring relationships between individual differences in personality traits and performance in applied settings. Much of this research has focused on the application of the Five Factor Model, or Big Five (e.g., Costa & McCrae, 1992; Goldberg, 1993). This research has shown that the Big Five are associated with a number of important life outcomes (e.g., Barrick & Mount, 1991; Poropat, 2009; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

Although the Big Five remains the most prevalent model of personality, studies adopting an alternative personality model known as the HEXACO Model have been increasing in the past decade (e.g., Ashton et al., 2004; Lee & Ashton, 2004). Within educational settings, several studies have demonstrated the potential advantages of the HEXACO model for predicting student outcomes, such as student grade point average (GPA), prosocial and counterproductive academic behaviors, and academic major choice (e.g., De Vries, De Vries, & Born, 2011; McAbee, Oswald, & Connelly, 2014; Pozzebon, Ashton, & Visser, 2014). Similarly, research has shown that the HEXACO traits predict key organizational and employee outcomes, such as supervisor performance ratings (e.g., Johnson, Rowatt, & Petrini, 2011) and counterproductive work behaviors (e.g., Lee, Ashton, & De Vries, 2005; Oh, Lee, Ashton, & De Vries, 2011). Despite growing concerns by employers over the so-called “skills gap” (Olson, 2015) and calls to integrate our understanding of how behavioral traits and skills relevant to educational performance translate into subsequent performance in the workplace (e.g., Casillas, Kyllonen, & Way, in press; Golubovich, Su, & Robbins, 2017), these two literatures remain relatively distinct.

Given this apparent gap in the literature, the aims of the present paper are three-fold: First, we systematically review the literature on applications of the HEXACO model in applied settings, highlighting the relevance of the HEXACO traits for predicting academically and organizationally relevant outcomes. Second, we introduce an applied personality framework for use in educational research and practice, the ACT Behavioral Skills Framework (Casillas et al., 2015), which is based on the HEXACO model. By way of example, we then discuss applications of the ACT Behavioral Skills Framework and its relevance to our understanding of the HEXACO model in educational settings and for preparing people to develop the necessary skills to succeed at school and at work. Third, and finally, we offer a number of suggestions for future research and application of the HEXACO model in educational and organizational contexts.

### **The HEXACO Model in Applied Contexts**

#### **Educational Outcomes**

Researchers have long considered the role of personality traits for predicting educational outcomes (De Raad & Schouwenberg, 1996). This research has shown that Conscientiousness is chief among the Big Five personality traits for predicting academic performance (e.g., McAbee

& Oswald, 2013; Poropat, 2009), particularly when operationalized using course grades or student GPA. For example, a meta-analysis by McAbee and Oswald (2013) reported a sample-weighted mean correlation of .22 for Conscientiousness with GPA, as compared to estimates ranging between -.02 (Extraversion) and .07 (Openness/Intellect) for the remaining Big Five domains. Some additional variation is observed at earlier stages of education. For example, a meta-analysis by Poropat (2009) reported small to moderate fully corrected correlations between Agreeableness ( $\rho = .27$ ), Conscientiousness ( $\rho = .22$ ), Emotional Stability ( $\rho = .11$ ), and Openness ( $\rho = .18$ ) and GPA among primary-school students after controlling for intelligence.

Considerably fewer studies have reported associations between the HEXACO traits and GPA. In general, this research underscores findings for the Big Five scales, such that Conscientiousness demonstrates the most consistent relations with GPA among the HEXACO domains (e.g., De Vries et al., 2011; McAbee et al., 2014; Thalmayer, Saucier, & Eigenhuis, 2011). Findings for the HEXACO traits of Extraversion, Emotionality, Agreeableness, and Openness generally parallel the small effect sizes observed for their Big Five counterparts. The evidence for Honesty-Humility (H-H), however, is mixed. De Vries et al. (2011) and Thalmayer et al. (2011) reported correlations of .23 and .26 between H-H and GPA among college students, respectively. In contrast, several studies (e.g., De Vries, Zettler, & Hilbig, 2014; McAbee et al., 2014; Pozzebon et al., 2014) have reported trivial associations between H-H and GPA. Given the inconsistent findings for H-H as a predictor of student GPA, additional research is needed to ascertain potential moderating conditions that might underlie these findings, and to elaborate the theoretical processes by which H-H might affect students' course-related outcomes.

Apart from GPA, researchers have examined relations between the HEXACO traits and a number of other educationally relevant outcomes. One area for which the HEXACO model may be advantageous is for predicting counterproductive student behaviors (CSB) (Credé & Niehorster, 2009). Several studies provide supporting evidence that both Conscientiousness and H-H negatively predict CSBs among college students (e.g., Allgaier, Zettler, Wagner, Püttmann, & Trautwein, 2015; Marcus, Lee, & Ashton, 2007).<sup>1</sup> For example, De Vries et al. (2011) reported relations among the HEXACO traits and students' CSBs. In two samples, Conscientiousness demonstrated strong negative relations with this outcome ( $r_s = -.42$  and  $-.44$ , respectively). Moreover, De Vries et al. observed a strong negative relation between H-H and CSB ( $r = -.40$ ). More recently, Van Rensburg, De Kock, and Derous (2018) replicated the negative relationship observed between H-H and CSB ( $r = -.25$ ) among a sample of South African students, although the magnitude of the relation observed was somewhat smaller than that reported by De Vries et al. (2011).

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<sup>1</sup>Fewer studies have reported on relations between the HEXACO traits and students' prosocial academic (citizenship) behaviors. However, Allgaier et al. (2015) do provide preliminary evidence that Honesty-Humility is positively related to prosocial engagement, although the effect obtained for prosocial behaviors in their study was smaller than that observed for antisocial student behaviors

Researchers have also reported similar findings for specific negative student behaviors related to CSB. For instance, Thalmayer et al. (2011, see online supplemental Appendix 4) observed small-to-moderate negative associations for Conscientiousness with the number of conduct complaints ( $r = -.22$ ) and for H-H and the number of complaints for which a student was held responsible ( $r = -.22$ ). Similar evidence comes from research examining relations between the HEXACO and cheating behavior (e.g., Hilbig & Zettler, 2015; Kleinlogel, Dietz, & Antonakis, 2018). For example, Van Rensburg et al. (2018) observed a small, negative association between H-H and collegiate cheating ( $r = -.11$ ), which appeared to primarily be driven by the Greed Avoidance facet of this trait ( $r = -.15$ ). McAbee et al. (2014) reported a similar finding, where H-H was positively related to a single-item behavioral frequency measure of ethics and integrity ( $r = .22$ ), broadly defined by a lack of cheating on assignments and exams. Unlike Van Rensburg et al. (2018), however, the H-H facet of Fairness demonstrated the strongest relationship with ethics and integrity ( $r = .22$ ).

Despite the growing research on the HEXACO model and educational outcomes, there are a number of areas in which the HEXACO model has received less attention. One such area is research on students' psychological adjustment. A meta-analysis by Credé and Niehorster (2012) reported moderate-to-strong sample-weighted relations for Conscientiousness (positive) and Neuroticism (negative) with overall, academic, and institutional adjustment to college life. Moreover, Agreeableness consistently demonstrated small-to-moderate positive associations with each of the adjustment outcomes.

Although there is scant research directly examining relations between the HEXACO traits and student adjustment, one exception is a study by Shu, McAbee, and Ayman (2017), who examined relations between the HEXACO personality traits and international students' general (i.e., adjustment to every-day living conditions), interaction (i.e., adjustment to interacting with host-country nationals), and school-related (i.e., adjustment to school-related factors) adjustment to college abroad. Results indicated that Agreeableness and Conscientiousness positively predicted students' general adjustment, Extraversion and Agreeableness predicted students' interaction adjustment, and Extraversion, Conscientiousness, and Openness predicted students' school-related adjustment. However, H-H and Emotionality were unrelated to any of the outcomes examined. The findings of this research point to potentially interesting future inquiries. Research is needed to clarify the differing roles of Emotionality and Agreeableness (vs. anger) within the HEXACO model from those effects observed for Neuroticism and Agreeableness within the Big Five (e.g., Credé & Niehorster, 2012). In addition, what, if any, role might H-H play for predicting adjustment-related outcomes?

Another area that has received limited attention is HEXACO traits and careers. Some studies have reported on relations between HEXACO traits and students' vocational interests (e.g., Holtrop, Born, & De Vries, 2015; McKay & Tokar, 2012). In one such study, Šverko and Babarović (2016) reported relations between HEXACO traits and Holland's (1959) RIASEC model. These authors reported meaningful relations for HEXACO Openness with Investigative ( $r = .30$ ) and Artistic ( $r = .48$ ) interests, H-H ( $r = .27$ ) and Emotionality ( $r = .27$ ) with Social

interests, and a negative association between H-H and Enterprising interests ( $r = -.31$ ). There is a clear need for additional research linking the HEXACO model to students' career-related decision-making in order to better understand the role that the HEXACO traits might play in student transitions to the workplace.

### **Work Outcomes**

There is also a considerable body of literature around the role of personality traits for predicting work outcomes. As with academic performance, Conscientiousness is chief among the Big Five traits for predicting task performance at work (e.g., Barrick & Mount, 1991). Relations for the remaining Big Five traits are more variable and more strongly tied to the nature of the job examined (e.g., Extraversion and sales performance; Hurtz & Donovan, 2000).

Conscientiousness similarly demonstrates meaningful relations with employees organizational citizenship (OCBs) (Chiaburu, Oh, Berry, Li, & Gardner, 2011) and counterproductive work behaviors (CWBs) (Berry, Ones, & Sackett, 2007), although Agreeableness and Neuroticism also demonstrate meaningful relations with these outcomes.

Research applying the HEXACO model to the study of employee performance outcomes has mostly focused on relations between H-H and employees' negative work behaviors (e.g., Ashton & Lee, 2007; Lee et al. 2005), such that H-H is negatively associated with outcomes including sexually harassing others (e.g., Lee, Gizzarone, & Ashton, 2003), unethical decision making (e.g., Heck, Thielmann, Moshagen, & Hilbig, 2018), and CWBs. For example, Oh et al. (2011) reported correlations ranging from  $-.33$  to  $-.55$  between H-H and a measure of workplace deviance in three samples. More recently, Anglim, Lievens, Everton, Grant, and Marty (2018) reported similar associations between H-H and CWBs in a study comparing relations between job applicants and non-applicants. Several studies have also reported that H-H predicts incremental variance in CWBs over and above the Big Five and other relevant predictors (Ashton & Lee, 2007). For example, Marcus et al. (2007) found that H-H contributed incremental variance for predicting CWBs and CSBs over and above the Big Five, gender, and an overt or personality-based measure of integrity across two employee and three student samples. Similarly, Lee et al. (2005) found that the inclusion of H-H contributed an average of 14% additional variance for predicting workplace delinquency over and above the Big Five.

A somewhat smaller set of studies has also examined associations between H-H and OCBs (e.g., Anglim et al. 2018; Cohen, Panter, Turan, Morse, & Kim, 2014; Szabó, Czibor, Restás, & Bereczkei, 2018; Wendler, Liu, & Zettler, 2018). In general, these studies support the finding that H-H predicts incremental variance in employees' prosocial behaviors, similar to the findings for antisocial behaviors at work. For example, Szabó et al. (2018) reported positive associations between employees' interpersonal ( $r = .27$ ) and organizationally ( $r = .31$ ) targeted OCBs.

Fewer studies have examined relations between H-H and employees' task-related (e.g., Templer, 2018; Wendler et al., 2018) and overall job performance ratings (e.g., Johnson et al., 2011). For example, Johnson et al. (2011) reported meaningful relations between supervisory performance ratings and three of the HEXACO traits: H-H ( $r = .18$ ), Emotionality ( $r = -.13$ ), and

Conscientiousness ( $r = .17$ ). Importantly, these authors found that H-H predicted an additional 2% of the variance in supervisor performance ratings over and above the remaining HEXACO traits, age, and gender. With respect to task performance, Wendler et al. (2018) reported a positive relationship ( $r = .19$ ) between H-H and this outcome. In contrast, Templer (2018) and Oh et al. (2014) did not find meaningful associations between H-H and task performance. In addition, Oh et al. (2014) examined the contribution of H-H to employees' task and contextual performance over and above cognitive ability and the Big Five. Although these authors found that H-H contributed an additional 2% of the variance for predicting employees' contextual performance, H-H did not contribute incrementally to the prediction of employees' task-related performance. Thus, although relations between the HEXACO traits, and H-H in particular, are strongly indicated for predicting employees' prosocial and antisocial work behaviors, the existing evidence suggests that H-H typically plays only a small (or negligible) role for predicting task-related and overall job performance ratings. Collectively, the findings from this body of research on the HEXACO traits, CWBs, and OCBs suggests the usefulness of the HEXACO model for predicting employee behavior, where H-H consistently predicts incremental variance in employee outcomes over and above the Big Five and other important individual difference characteristics. Future research should continue to probe the mechanisms underlying these relations to provide a more nuanced understanding of how H-H transmits its influence to these outcomes.

There are also a number of topics that have received relatively little attention with respect to the HEXACO traits at work. In particular, few studies have directly examined the role of the HEXACO traits for predicting job attitudes, employee well-being, and employee turnover and withdrawal. Regarding employee attitudes and well-being, Wiltshire, Bourdage, and Lee (2014) reported relations between the HEXACO traits and employees' ratings of job stress and job satisfaction. With respect to job stress, only Extraversion was meaningfully associated with this outcome ( $r = -.13$ ). However, all of the HEXACO traits demonstrated meaningful associations with employees' job satisfaction, such that Extraversion was strongly associated with this outcome ( $r = .49$ ). Notably, H-H demonstrated a small positive correlation with job satisfaction ( $r = .21$ ). Future research should continue to explore relations between the HEXACO traits and other work-related outcomes, and should seek to understand what, if any, role H-H might play for predicting employee outcomes outside of prosocial and antisocial work behaviors.

### **A Shift toward 21<sup>st</sup> Century Behavioral Skills**

Although the research cited above shows that HEXACO traits are related to important outcomes in education and work settings, there has been little work in this area that makes direct connections between the educational and work contexts themselves. There are several issues that such work could help address. First, educational institutions should place greater emphasis on behavioral skills in terms of career readiness. Grades and standardized test scores typically receive the most weight in postgraduate admissions decisions, even though behavioral skills are highly desired by employers (e.g., LinkedIn, 2018). Of positive note is that behavioral skills

(also referred to as social emotional learning [SEL] skills) have garnered increased attention in education over the past few years, as shown by the popularity of the grit construct in education (Duckworth, Peterson, Matthews, & Kelly, 2007), and the work of the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2018). Second, there are challenges in the work environment that are not typically part of educational contexts, such as rapidly changing tasks/priorities. Students should be better prepared to deal with challenges like this while they are still in school. This requires a more detailed description of the skills necessary to perform successfully at work. Finally, early intervention is critical for developing behavioral skills. Interventions have been shown effective for traditional academic subjects (e.g., math; Campbell & Ramey, 1994) and, more recently, for personality change (Roberts et al., 2017); thus, early intervention might also be applied to behavioral skills. The ACT Behavioral Skills Framework (Casillas et al., 2015) was created to address some of these issues, and is described below.

### **The ACT Behavioral Skills Framework**

The Behavioral Skills Framework (BSF) is part of the ACT Holistic Framework, a comprehensive, research-based framework that focuses on the broad range of knowledge and skills that people need to be successful in education and work contexts, and covers much more than core academic subjects (e.g., math, English) that students typically learn in school (Camara, O'Connor, Mattern, & Hanson, 2015). A key feature of the BSF is its focus on interpersonal, self-regulatory, and effortful behaviors related to successful performance in education and work settings (Casillas et al., 2015). The purpose of the framework is multifold:

- Integrate research from multiple areas of psychology, including personality, educational, developmental, and industrial/organizational.
- Generate a framework consistent with existing research that ranges from general behavior domains as organizers to more specific behavioral skills as detailed descriptors.
- Create a developmentally-informed framework relevant to a broad range of ages, settings, and outcomes throughout the Kindergarten-to-Career pipeline.
- Define what people need to know and be able—and willing—to do from a behavioral perspective in order to develop and thrive in education and workplace settings.
- Serve as a “common language” for education and workforce researchers and professionals to communicate about the behavioral skills that are important for success in education and work.
- Serve as a foundation for expanding research and applied work related to measurement of behavioral skills and development of behavioral skills training aligned to these constructs.

### **Development of the BSF**

As documented by Casillas et al. (2015), the HEXACO model (Lee & Ashton, 2004) was used as the organizing structure of the BSF because of its apparent improvements over the Big Five, such as greater cultural inclusiveness and the addition of H-H (Ashton et al., 2004). The six personality domains of the HEXACO model were renamed in the BSF to capture the behavioral representations of each personality-based domain and to enhance the understanding of the



constructs for a general audience (see **Error! Reference source not found.** for crosswalk; definitions are available in the online supplemental appendix).

Figure 1 contains an illustration of the BSF's hierarchical structure. The highest level contains broad domains of personality (e.g., Sustaining Effort). The following level contains components, or "facets" (e.g., Cooperation). The next level contains subcomponents (e.g., Respect for others), similar to what has been described as "personality nuances" (Möttus, Kandler, Bleidorn, Riemann, & McCrae, 2017). The final and most specific level of the framework is composed of Performance Level Descriptors (PLDs), which are specific observable behaviors that can lead to success in applied settings.

The BSF is by no means the first framework to emphasize the importance of a hierarchical structure of personality. For example, lower-order facets or components of personality (e.g., Persistence, Self-Control) are often found to be better predictors of more specific behavioral outcomes (e.g., punctuality, cleanliness) when compared to the higher-order personality traits (e.g., Dudley, Orvis, Lebiecki, & Cortina, 2006; Roberts, Chernyshenko, Stark, & Goldberg, 2005). Currently, the theoretical and empirical research literature does not typically extend past the component/facet level and therefore may be failing to identify additional predictive factors of behavior and/or ways by which behavioral skills can be trained.

To address this, ACT researchers expanded the BSF to include subcomponents, which are intended to be closer to the observable behaviors that may be explicitly trained or developed to enhance academic and workplace success. Since research suggests that non-cognitive skills are malleable, particularly during childhood and adolescence (Almlund, Duckworth, Heckman, & Kautz, 2011; Jones, Bouffard, & Weissbourd, 2013), people can continue to develop in these areas. The specific behaviors (i.e., PLDs) included under each subcomponent were developed by subject matter experts (SMEs: e.g., researchers, teachers, instructors, academic advisors, workplace supervisors) to describe what students and employees need to know and be able and willing to do in order to achieve educational and work success. For each subcomponent, there are several developmental groups (i.e., elementary school, middle school, high school, postsecondary, and workforce). Also, within each group, PLDs have been organized by four effectiveness levels (not effective, somewhat effective, effective, and highly effective). Although the specifics of what describes effective behavior varies for the different age ranges, the broad categories remain the same. For example, the criteria for Self-Control vary across age groups, whether it is related to interacting with others during gym class at school or during a monthly status meeting at work, yet all age groups are expected to regulate their behavior appropriately. In general, older groups are held to higher standards of effectiveness. Having the same domains, components, and subcomponents across the age groups should help to promote longitudinal research as well as applications in education and work settings by emphasizing continuity of terminology and more clearly delineated developmental progressions. (For a detailed description of the development of behavior PLDs, refer to Latino et al., 2017.)

### **Convergence between the BSF and the HEXACO Model**

Although the ACT Behavioral Skills Framework was based on the HEXACO model, it was not intended to directly replicate the model, as evidenced by the additional sub-component (i.e., sub-facet) level of the BSF. It is therefore useful to examine the conceptual spaces covered by the broad domains of each model and determine where there is overlap and where there is not. This section briefly describes the conceptual similarities and differences between the six domains of the BSF and the HEXACO model. (For a more in-depth comparison, refer to Colbow, Latino, Way, Casillas, & McKinniss, 2017.)

We present some initial empirical research showing convergence between the domains of the two models (from Manning, Way, & Casillas, 2018). These data come from a sample of 427 undergraduate participants from a large university in the Northeastern US. Participants were primarily female (54.8%), White (59.3%), and had an average age of 18.89 years ( $SD = 1.73$ ). Scores on BSF scales were compared to scales from Soto and John's (2017) 60-item BFI-2 and Lee and Ashton's (2018) 100-item HEXACO-PI-R scale. For the BFI-2, participants rated how well characteristics applied to them. Examples include "Tends to be lazy" and "Is talkative." For the HEXACO-PI-R, participants rated their level of agreement to items such as "On most days, I feel cheerful and optimistic" and "Even in an emergency, I wouldn't feel like panicking."

The content in the Acting Honestly (BSF) and Honesty-Humility (HEXACO) domains overlapped reasonably well. Each model has a Modesty, Fairness, and Honesty (Genuineness for BSF, Sincerity for HEXACO) component. The main differences are that HEXACO Modesty includes some unique Greed Avoidance content and the BSF Modesty includes some unique Acting Responsibly content. This is because the BSF was intended to focus on skills relevant for educational and workplace success. In the course of framework development and consultation with experts, it was decided that Greed Avoidance was not as relevant to success in these contexts, whereas including Acting Responsibly content (e.g., accepting consequences for your mistakes) was. Results showed a correlation of  $r = .47$  between the Honesty domains of these two models, indicating a moderate degree of convergence (Manning, Way & Casillas, 2018). An unexpected divergent result of note was that Acting Honestly correlated  $r = .55$  with Conscientiousness.

The content in the Maintaining Composure (BSF) and Emotionality (HEXACO) domains was expected to diverge somewhat, which proved to be the case. This is because HEXACO domain includes a Sentimentality component that focuses on the tendency to form strong emotional bonds with others that was determined to not be as relevant for education and workplace success and was therefore not included in the BSF. The other aspects of the two models are fairly similar. The Self Confidence component (BSF) overlapped well with the Dependence component (HEXACO) and the Stress Tolerance component (BSF) overlapped with the Anxiety and Fearfulness components (HEXACO). Results showed a correlation of  $r = -.29$  between the Emotional Stability domains of these two models, indicating lower convergence (Manning et al., 2018). The negative correlation is because the two domains are defined by opposite ends of the Emotional Stability continuum; Maintaining Composure is the high end, and Emotionality is at the low end. As stated above, the low absolute value of convergence was

expected. Unexpected divergent results of note were that Maintaining Composure correlated  $r = .63$  with Extraversion and  $r = .52$  with Conscientiousness.

The content in the Socializing with Others (BSF) and Extraversion (HEXACO) domains was expected to be fairly similar, as there has been a great deal of research on the content and structure of the Extraversion personality domain (e.g., Watson & Clark, 1997). As expected, there was a high degree of content overlap between the Sociability components, the Optimism (BSF) and Liveliness (HEXACO) components, and the Assertiveness (BSF) and Social Boldness (HEXACO) components. Results showed a correlation of  $r = .81$  between the Extraversion domains of these two models, indicating a high degree of convergence (Manning et al., 2018).

The content in the Getting Along with Others (BSF) and Agreeableness (HEXACO) domains overlapped moderately well. Each of the HEXACO components has an analogue in the BSF: Patience (both), Goodwill (BSF) and Forgiveness (HEXACO), Perspective Taking (BSF) and Gentleness (HEXACO), and Cooperation (BSF) and Flexibility (HEXACO). The BSF also includes a Helpfulness component, as this was judged to be important for education and work success. This component is conceptually similar to the Altruism interstitial scale in the HEXACO model. Results showed a correlation of  $r = .51$  between the Agreeableness domains of these two models, indicating a moderate degree of convergence (Manning et al., 2018).

The content in the Sustaining Effort (BSF) and Conscientiousness (HEXACO) domains overlapped to a moderate degree. The Persistence (BSF) and Diligence (HEXACO) components and Self Control (BSF) and Prudence (HEXACO) components showed a high degree of conceptual overlap. The other components were not as similar, in part because the BSF strove to show a greater breadth of content that is typically described in the Conscientiousness domain (e.g., Roberts et al., 2005). In spite of this, results showed a correlation of  $r = .81$  between the Conscientiousness domains of these two models, indicating a high degree of convergence (Manning et al., 2018). This shows that the item content between measures of these models is more similar than the component definitions might suggest.

The content in the Keeping an Open Mind (BSF) and Openness to Experience (HEXACO) domains overlapped to a moderate degree. The Accepting Differences (BSF) and Unconventionality (HEXACO) components, the Curiosity (BSF) and Inquisitiveness (HEXACO) components, and the two Creativity components showed a high degree of conceptual overlap. The HEXACO component of Aesthetic Appreciation was determined to not be relevant to education and work success. In its place, the BSF includes a Flexibility component, which includes content such as being adaptable to change. Results showed a correlation of  $r = .61$  between the Openness to Experience domains of these two models, indicating a moderate degree of convergence (Manning et al., 2018).

### **Applications of the BSF**

The content and structure of the Behavioral Skills Framework suggests several potential applications. First, it provides students, workers, and organizations with better descriptions of effective behaviors important for success. This includes the behaviors from the Acting Honestly domain. This domain is important for positive outcomes in both educational contexts (e.g.,

academic honesty and plagiarism; De Vries et al., 2011) and workforce contexts (e.g., Judge, Rodell, Klinger, Simon, & Crawford, 2013). Second, the framework can be used as a benchmark for effective behavior and to identify students' or employees' strengths and areas for development. An additional—though related—application is that the framework could serve as a basis for assessments and subsequent interventions to help people to improve their skills. Finally, the research underlying the development of the BSF shows that the same skills are relevant for education and workforce contexts (e.g., Judge et al., 2013; Poropat, 2009). This is encouraging because we can start to develop students' behavioral skills at a younger age (e.g., elementary grades) and, with continuous support and programming, assist them in making more successful educational transitions, as well as more successful school-to-work transitions. Below, we expand on this idea, discuss some considerations and concerns around using a HEXACO-based framework for aligning educational and work contexts, and suggest next steps for practical applications and empirical research.

### **Future Considerations for Personality and Behavioral Skills Research**

The work underlying the Behavioral Skills Framework comes at a time when there is an increased interest in developing behavioral or socioemotional learning (SEL) skills. For example, a number of research and popular outlets have continued to highlight the importance of these skills across educational and work contexts, as well as the need to develop these in students and workers (e.g., Bridgeland, Bruce, & Hariharan, 2013; Elchert, Latino, Bobek, Way, & Casillas, 2017; LinkedIn, 2018). SEL skills, as we have argued, are in large part based on behavior and personality frameworks like the FFM and the HEXACO (Casillas et al., 2015; Casillas et al., in press; Kyllonen, 2013). Thus, these skills—by whatever name they are called—and their underlying frameworks are of high relevance and interest to both scientific and applied communities.

Unfortunately, there is confusion in the field due to the jingle-jangle problem that is prevalent in the psychology literature and the popular press (cf. Block, 1995). This problem refers to two distinct fallacies that often emerge in the measurement of psychological constructs. *Jingle* fallacies reflect the often-incorrect assumption that two different constructs are the same simply because they bear the same name. Conversely, *jangle* fallacies refer to the often-incorrect assumption that two highly similar or identical constructs are different because they are labeled differently. Due, in part, to this problem, there has been a proliferation of naming conventions both in the literature and in applied uses. This proliferation of names has contributed to what could be called “framework fatigue,” which is an extension of “initiative fatigue”—programs that are viewed as piecemeal, are poorly implemented, and/or have little scientific backing. These programs are thus easily abandoned when institutional or organizational priorities shift (Newman & Dusenbury, 2015).

One might argue that frameworks that do not have a strong scientific foundation are likely to suffer a similar fate as poorly-implemented initiatives. An additional challenge faced by many frameworks is lack of alignment across developmental stages (e.g., childhood to adolescence to adulthood) as well as across important settings (e.g., school vs. work). This lack

of alignment makes it more difficult to perform longitudinal research examining developmental trends or attempts to capture skill development and growth. It also makes it more challenging for educators and workforce professionals to utilize frameworks to guide a variety of applications, including curriculum development, interventions, and training, and to examine the efficacy of such applications.

Thus, in developing the BSF, Casillas et al. (2015) attempted to address the concerns noted above in the following ways. First, the framework was designed to focus on important behavioral skills supported by the literature and subject matter experts, which included both researchers and practitioners. Second, the authors used a robust foundation as an organizer; the choice of the HEXACO model was deliberate due to its scientific backing and potential to inform a range of applications (e.g., assessment, curriculum, training and development). Third, in terms of the jingle-jangle problem, the authors indicated a desire to stay true to the personality foundation of the framework and initially used the construct labels provided by the authors of the HEXACO. However, after conducting focus groups with a range of practitioners about how they understood these labels and how they would use them, the authors opted to use a naming convention that was more accessible to a broader (non-research) audience. For example, when presented with terms like “Emotional Stability” and “Emotion Regulation,” practitioners were less receptive to the constructs and their definitions than when terms like “Maintaining Composure” were used.

Finally, when it comes to alignment, the authors set out to design a framework that would be aligned across developmental stages and across settings by creating a system that, at the most specific level of the framework, is based on performance level descriptors (PLDs) that describe in detail what students and employees need to know and be able and willing to do in order to achieve educational and career success. From one developmental group to another and across applied contexts, the constructs and definitions remained the same and the authors used SMEs to describe what effective behavior looked like for each construct and each developmental group (see Latino et al., 2017). Thus, the BSF was designed with alignment from the onset.

### **Behavioral Skills Interventions**

The Behavioral Skills Framework, and personality assessment more broadly, offer a number of potential applications for developmental interventions to help students prepare for the workplace. One potential avenue is the use of the BSF for identifying students who are in particular need of development related to behavioral skills that are supportive of academic performance and are often described as “study skills” (Credé & Kuncel, 2008), such as planning, organization, and time-management skills necessary for successful performance in both academics and at work. In particular, students high in Conscientiousness tend to more readily engage in effortful strategies—such as spending more time studying, preparing for exams, and completing homework assignments—relative to their peers (Corker, Oswald, & Donnellan, 2012). Thus, targeting students low in Conscientiousness for interventions designed to increase the frequency and use of such effortful strategies might provide one mechanism to encourage student success. Indeed, research suggests that students who complete first-year seminars that

emphasize the development of knowledge, skills, and abilities relevant to successfully navigating the transition to college life demonstrate small, yet meaningful gains in first-year grades and one-year retention rates (Pernzadian & Credé, 2016). Academic practitioners might, for example, evaluate incoming students on their standing on the components or subcomponents that tap BSF Sustaining Effort (e.g., organization, maintaining effort, initiative) and recommend that students who score low on these enroll in first-year seminars targeting these specific skills.

Beyond interventions directly targeting students' study skills, the BSF offers opportunities to identify potential points of intervention to foster student development in behavioral skills relevant to effective interpersonal functioning in the workplace. For example, students who score low on the Socializing with Others and Getting Along with Others dimensions of the BSF might be targeted for social skills interventions, such as encouraging these students to engage in extra-curricular activities, which have been shown to relate to improved interpersonal skills (e.g., communication, leadership) and subsequent employability (e.g., Lau, Hsu, Acosta, & Hsu, 2014). Moreover, meta-analytic evidence suggests that student participation in SEL programs is associated with improved interpersonal skills (e.g., empathy, cooperation, conflict management) and better academic achievement among primary and secondary school students (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Similar interventions might be well-suited for students who score low on the BSF Acting Honestly, Maintaining Composure, and Getting Along with Others dimensions, which might also be successfully integrated into target first-year seminar courses.

One critical element to understanding personality traits as they relate to performance outcomes across education and the workplace is the role of development over time. Although there is a robust literature examining personality trait development from childhood to adolescence (e.g., De Haan, De Pauw, Van den Akker, Deković, & Prinzie, 2016), adolescence to adulthood (e.g., Donnellan, Conger, & Burzette, 2007), and across the lifespan (e.g., Donnellan, Hill, & Roberts, 2015; Soto, John, Gosling, & Potter, 2011), relatively few studies have examined the dynamics of personality-performance associations as they relate to education (e.g., Lievens, Ones, & Dilchert, 2009) and work (e.g., Le, Donnellan, & Conger, 2014). Importantly, even fewer studies have examined how educational and work experiences help to shape personality growth (e.g., Le et al., 2014). Given the importance of temporality for personality development, future research should strive to examine how individual differences in personality growth impact students' career trajectories, how educational and work experiences might lead to personality and behavioral skills growth, and the interplay of these personal and experiential features. For example, Göllner et al. (2017) reported that adolescents' engagement in homework activities led to positive development in Conscientiousness over time. We see great potential for future longitudinal analyses that examine how intra- and inter-individual variability in students' social-emotional learning over time leads to substantive personality change, growth and subsequent intra- and interpersonal effectiveness throughout the lifespan.

Generally speaking, examining change trajectories over time has presented various difficulties to researchers with respect to data collection and appropriate statistical modeling.

However, recent developments and applications in hierarchical linear modeling (e.g., Soto & John, 2012), latent growth modeling (e.g., Duncan & Duncan, 2009), and experience sampling methodology (e.g., Beal, 2015) have made the examination of personality processes as they unfold over time more accessible than ever before. We strongly encourage authors to consider examining personality-performance relations more dynamically throughout higher education, work life, and the transition from school-to-work, particularly as it relates to how educational interventions affect growth trajectories over time.

### **Conclusion**

Although personality researchers have frequently examined associations between personality traits and important educational and work outcomes, past research has done little to integrate the findings across these literatures. The present review attempts to fill this gap in three ways: 1) by first highlighting key findings and areas of overlap for the HEXACO Model of Personality from research across educational and work settings, 2) by describing the ACT Behavioral Skills Framework (Casillas et al., 2015), based largely on the HEXACO model, as one potential framework by which integration of research across educational and work settings might be achieved, and 3) by describing a number of key considerations for research on personality and behavioral skills development and potential applications therein. Although the present work is not intended to be conclusive, we hope that this review can serve as an initial step toward greater integration of these literatures.

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Table 1

*Behavioral Skill Framework Domains and Corresponding HEXACO Traits*

<b>Behavioral Skill Domain</b>	<b>Corresponding HEXACO Trait</b>
Acting Honestly	Honesty-Humility
Keeping an Open Mind	Openness to Experience
Getting Along with Others	Agreeableness
Maintaining Composure	Emotionality (Low)
Socializing with Others	Extraversion
Sustaining Effort	Conscientiousness

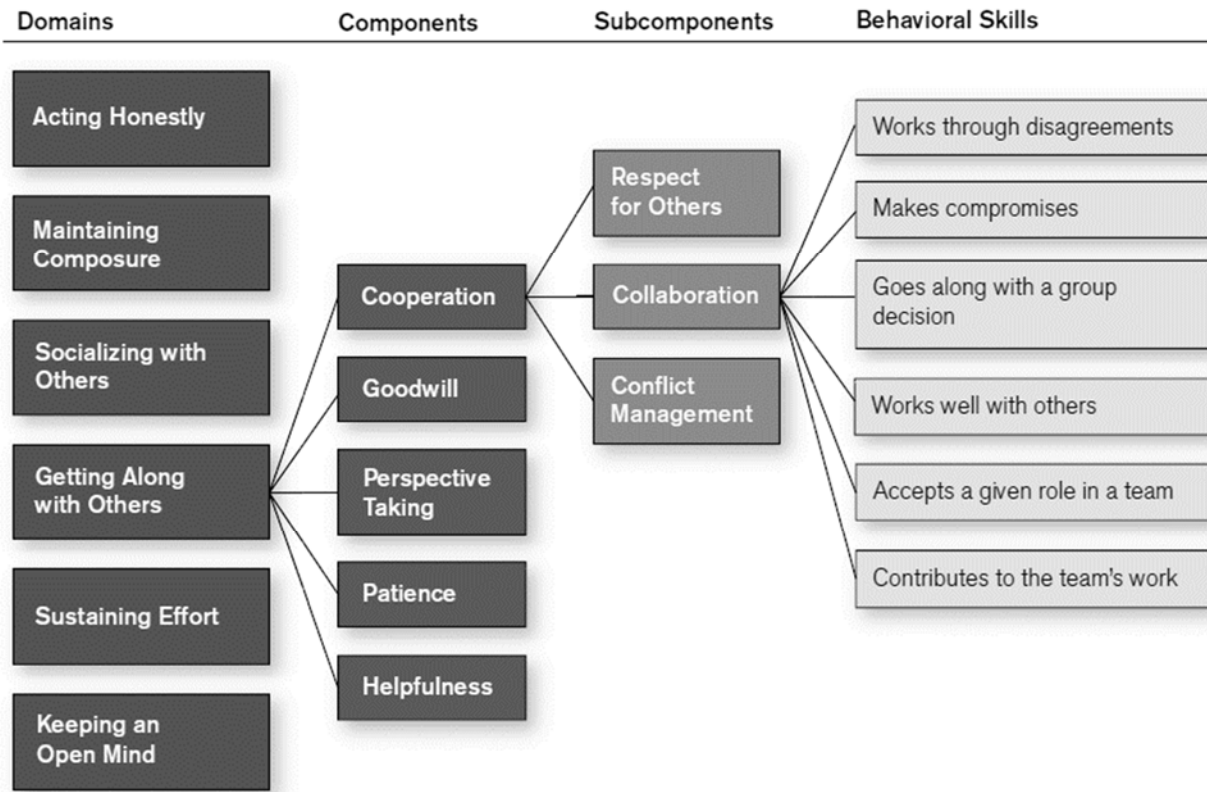


Figure 1. Hierarchical structure of Behavioral Skills Framework. Reprinted from *Beyond Academics: A Holistic Framework for Enhancing Education and Workplace Success* (p. 31), by Camara, W., O'Connor, R., Mattern, K., & Hanson, M.A., 2015, Iowa City, IA: ACT, Inc. Copyright 2015 by ACT, Inc. Reprinted with permission.



Supplemental Appendix: Definitions of Elements of the Behavioral Skill Framework

Dimension	Component	Subcomponent
<p><b>Acting Honestly (Honesty-Humility)</b> Describes the extent to which a person values and adheres to ethical and moral standards of behavior, as well as personal level of humility.</p>	<p><b>Genuineness</b> Being sincere and truthful in interactions, appropriately giving others credit, and acknowledging his/her mistakes.</p>	<p><b>Truthfulness</b> Interacts with others in a straightforward, open, and truthful manner.</p>
	<p><b>Fairness</b> Acts in ways that are intended to be unbiased and fair to everyone.</p>	<p><b>Acceptance of Responsibility</b> Accepts responsibility for his or her actions, including giving others due credit when appropriate.</p>
	<p><b>Modesty</b> Avoids boasting or acting superior to others and is humble about achievements.</p>	<p><b>Fairness</b> Acts in ways that are intended to be unbiased and fair to everyone.</p>
<p><b>Keeping an Open Mind (Openness to Experience)</b> Describes a person’s level of open-mindedness and curiosity about a variety of ideas, beliefs, people, and experiences.</p>	<p><b>Creativity</b> Generating original ideas, using existing ideas or things in new ways, and having an active imagination.</p>	<p><b>Originality</b> Generates new ideas related to tasks, processes, theories, etc.</p>
	<p><b>Curiosity</b> Seeking out information to better understand a wide range of topic areas and/or obtaining a depth of understanding in one topic area that goes beyond what is required.</p>	<p><b>Active Imagination</b> Imagines and/or creates things that do not currently exist in the real world.</p>
	<p><b>Flexibility</b> Adapting to new environments and making adjustments to accommodate changes.</p>	<p><b>Information Seeking</b> Asks questions and searches for information on a wide variety of topic areas.</p>
	<p><b>Accepting Differences</b> Being open-minded and accepting of ideas, cultures, and ways of doing things that are different from his/her own.</p>	<p><b>Depth of Knowledge</b> Obtains a level of knowledge that goes beyond the minimum requirements related to performing required tasks.</p>
	<p><b>Open-mindedness</b> Keeps an open mind when encountering ideas, opinions, and thoughts that are different from his or her own.</p>	<p><b>Environmental Adaptability</b> Adjusts his or her behavior to meet the requirements of different or unfamiliar situations and environments.</p>
	<p><b>Embracing Diversity</b> Shows an interest in and respect for people from different backgrounds and cultures.</p>	<p><b>Accommodation</b> Adjusts existing schedules or plans in order to accommodate changes to tasks and facilitate their completion.</p>
		<p><b>Open-mindedness</b> Keeps an open mind when encountering ideas, opinions, and thoughts that are different from his or her own.</p>

<p><b>Maintaining Composure (Emotionality)</b> Describes the extent to which a person is relatively calm, serene, and able to manage emotions effectively.</p>	<p><b>Stress Tolerance</b> The degree to which a person can control feelings of anxiety and other negative emotions in order to function effectively in a range of situations.</p>	<p><b>Worry Management</b> Does not allow anxiety and fear to impact the completion of daily activities or tasks.</p>
	<p><b>Self Confidence</b> A tendency to be self-assured and to make decisions without needing a lot of input from others.</p>	<p><b>Negative Feeling Management</b> Does not allow negative feelings (e.g., sadness, guilt, shame) to impact the completion of daily activities or tasks.</p>
	<p><b>Decisiveness</b> Makes his or her own decisions as appropriate.</p>	<p><b>Independence</b> Works on tasks without needing a lot of support or guidance from others.</p>
	<p><b>Assertiveness</b> Influencing others and preferring to be in charge in social interactions and group activities.</p>	<p><b>Taking Charge</b> Seeks out positions of leadership as appropriate.</p>
<p><b>Socializing with Others (Extraversion)</b> Describes a person's preferred level of social interaction, behavior in interpersonal situations, and optimism.</p>	<p><b>Optimism</b> The degree to which a person expresses a positive mood and a positive outlook.</p>	<p><b>Influence</b> Persuades others to agree with his or her ideas as appropriate.</p>
	<p><b>Cheerful Mood</b> Generally presents an upbeat and hopeful mood when interacting with others.</p>	<p><b>Positive Outlook</b> Generally presents a positive view of situations.</p>
	<p><b>Sociability</b> Seeking out and enjoying situations involving interpersonal interaction and building relationships with others.</p>	<p><b>Interacting with Others</b> Seeks out and actively participates in social activities when appropriate.</p>
	<p><b>Networking</b> Maintains and expands his or her social group.</p>	<p><b>Respect for others</b> Interacts with others in a polite and considerate manner.</p>
<p><b>Getting Along with Others (Agreeableness)</b> Describes the extent to which a person interacts positively and cooperates with others, and is generally kind, friendly, and tactful.</p>	<p><b>Cooperation</b> Being respectful, polite, collaborative, and skilled at working through conflict with other people.</p>	<p><b>Collaboration</b> Completes groups tasks and achieves group goals by effectively interacting with others.</p>
	<p><b>Conflict Management</b> Works through conflicts and disagreements productively.</p>	<p><b>Interpreting Emotional Reactions</b> Responds appropriately to emotional reactions from others.</p>
	<p><b>Perspective Taking</b> Identifying, acknowledging, and understanding the emotions of others, showing concern for others, and considering the audience when providing information.</p>	<p><b>Showing Concern</b> Demonstrates concern and compassion for others' feelings.</p>

		<p><b>Considering the Audience</b> Considers others' feelings and points of view when communicating information.</p>
	<p><b>Goodwill</b> Assuming others have good intentions, trusting others, being able to forgive and not holding grudges.</p>	<p><b>Forgiveness</b> Continues to work or interact with others even after others have wronged (e.g., deceived, hurt) him or her as appropriate.</p>
		<p><b>Trust</b> Interactions with others are influenced by a belief that others generally have good intentions (e.g., others are usually honest and will do what they say they will do).</p>
	<p><b>Helpfulness</b> Helping others and being generous with his/her time and/or resources despite personal cost.</p>	<p><b>Assisting Others</b> Helps others as needed.</p>
		<p><b>Selflessness</b> Shows generosity in sharing time and resources with others despite the impact it may have on him or herself.</p>
	<p><b>Patience</b> Tolerating frustrations presented by others or by situations without expressing irritation or hostility.</p>	<p><b>Tolerating Frustrations with Others</b> Effectively deals with disappointment, annoyances, and setbacks related to others' actions without showing irritation or anger.</p>
		<p><b>Tolerating Situational Frustrations</b> Effectively deals with disappointment, annoyances, and setbacks related to situational factors without showing irritation or anger.</p>
<p><b>Sustaining Effort (Conscientiousness)</b> Describes a person's level of diligence, effort, organization, self-control, and compliance with rules.</p>	<p><b>Dependability</b> Reliably fulfilling responsibilities, meeting deadlines, and producing quality work.</p>	<p><b>Timeliness</b> Follows a predetermined schedule for appointments/classes and tasks.</p>
		<p><b>Follow Through</b> Meets commitments and works on tasks until they are complete.</p>
		<p><b>Quality</b> Submits high quality work.</p>
	<p><b>Order</b> Planning and organizing tasks and materials, creating schedules, monitoring progress, and paying close attention to details.</p>	<p><b>Organization</b> Uses a systematic approach to organize tasks and materials.</p>
		<p><b>Planning</b> Creates and follows appropriate schedules or timelines for tasks.</p>
		<p><b>Monitoring</b> Checks to make sure progress is being made toward the completion of tasks.</p>
	<p><b>Persistence</b> Working hard, making progress on</p>	<p><b>Overcoming Challenges</b> Continues to work on tasks despite the</p>

<p>relevant tasks, and maintaining focus despite setbacks or difficulties.</p>	<p>difficulty level, the presence of significant obstacles, or previous setbacks.</p>
	<p><b>Maintaining Effort</b> Puts in the time and sustained energy needed to successfully complete a task.</p>
	<p><b>Focusing</b> Maintains attention on the current activity despite the nature of the task or distractions.</p>
<p><b>Rule Consciousness</b> Following rules and procedures and complying with authority.</p>	<p><b>Compliance</b> Follows instructions, procedures, and rules.</p>
	<p><b>Respect for Rules/Authority</b> Shows respect and appreciation for authority figures and rules</p>
<p><b>Goal Striving</b> Setting challenging goals, doing tasks without being told, and working to improve or learn new skills.</p>	<p><b>Self Improvement</b> Works hard to become more effective by learning new skills/knowledge or improving existing skills.</p>
	<p><b>Initiative</b> Takes action without being asked to do so.</p>
	<p><b>Goal Setting</b> Sets high but achievable goals for self-improvement and advancement.</p>
<p><b>Self Control</b> Managing impulses and weighing the consequences of one’s behavior before acting.</p>	<p><b>Restraint</b> Resists the impulse to act on desire.</p>
	<p><b>Thinking before acting</b> Takes the time to consider his or her options, potential consequences, and steps that need to be taken before taking action.</p>