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## **Development of a Scale Designed to Measure Interest in Verbal and Written Expression**

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I am submitting herewith a dissertation written by Jared Ian Goldman entitled "Development of a Scale Designed to Measure Interest in Verbal and Written Expression." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

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Development of a Scale Designed to Measure  
Interest in Verbal and Written Expression

A Dissertation Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee, Knoxville

Jared Ian Goldman

May 2019

## **Abstract**

The purpose of this research is to create a scale that measures an individual's interest in verbal and written expression. Psychological theorists have held that individuals benefit emotionally from articulating their thoughts and feelings; these theories have found support in empirical studies that suggest the psychological benefits of certain language-based behaviors and experience in language-rich environments. Moreover, theorists and researchers have identified differences in individuals' relationships with language. In light of this literature, this scale is an attempt to create a measure that assesses an individual's relationship with language in a novel way. This paper consists of two studies. The first, a pilot study, develops the scale, examines its psychometric properties, and explores its relationship with theoretical correlates based on responses from online participants. The second is a replication study that aims to determine whether the pilot study's results replicated in a different sample who filled out the questionnaire in person.

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## CHAPTER 1

### INTRODUCTION

Words, whether written or spoken, have long been a subject of interest among investigators of mental health. This curiosity has spanned the centuries: In ancient times, thinkers promoted the powers of language-based art, either through experiencing the drama of a theatrical production (Vives, 2011) or quiet immersion in books (McCulliss, 2012); an ancient library in Alexandria, Egypt, had “The Healing Place of the Soul” inscribed above its entryway (Riordan & Wilson, 1989). In modern times, psychoanalytic theoreticians have debated the mental health benefits of articulating one’s inner world, while empirical researchers continue to discover links between language-based behaviors and emotional well-being. One aspect of research into language use concerns the varying aptitudes, attitudes, and beliefs individuals have in relation to language. With the goal of furthering our understanding of language-based behaviors and mental health, this study aims to develop a new scale measuring these individual differences – specifically, the degree to which people are interested in verbal and written expression.

#### **Theoretical Approaches to Language and Psychological Health**

Since its infancy, the psychoanalytic tradition has associated language use with the restoration of psychological health. Theories of the relationship between psychological functioning and language use have evolved within this tradition. Generally speaking, the ability to use language to express one’s inner world was initially associated with adaptive, reality-based thinking (Freud, 1962). Later theorists, who focused on experiences of language acquisition during development, added layers

of complexity to conceptions of the benefits of language use (Loewald, 1978; Rizzuto, 2002; Stern, 1985). Certain theorists implied that one's early experience with language could affect the emotional experience of expressing one's inner world, suggesting that individuals can develop different relationships with linguistic self-expression (Loewald, 1978; Rizzuto, 2002). Others recognized that individuals display different linguistic styles that affect the degree of emotion they convey via articulation (Bucci, Maskit, & Murphy, 2016). These theoretical positions not only suggest the importance of the role language plays in mental health, but also that individual differences in language use could affect an individual's psychological functioning.

The central place of language in psychotherapy was suggested by one of Freud and Breuer's earliest patients, Anna O. According to the classic case study, Anna O. attributed the remission of her symptoms to "the talking cure," during which her internally generated images and narratives found verbal expression (Freud & Breuer, 1895). More vividly, she characterized the process as "chimney sweeping," implying articulation cleaned out residue clogging her mind (Freud & Breuer, 1895). The clinicians referred to this process as "catharsis," suggesting that the talking cure was successful because it allowed the patient to purge herself of troubling thoughts and emotions (Freud & Breuer, 1895).

As Freud continued to study his nascent approach to psychiatric care, his beliefs about the role of language grew more specific. Inspired by the supremacy of science and rationality in his era, he eventually posited that the language system is a vehicle by which our infantile wishes and fantasies – aspects of mental production at odds with a reality approachable through science and logic – are processed and aligned more

closely with external reality (Freud, 1962). Freud (1962) characterized the content of our unconscious (where fantasies and wishes promulgate freely due to lack of exposure to the demands of reality) as governed by primary process mentation, which is distinctly irrational. In primary process mentation the pleasure principle reigns, meaning the unconscious is ruled by aggressive and libidinous drives that give rise to fantasies that are potentially considered taboo in civilized society (Freud, 1962). As the developing individual acquires language, a process in which “thing-presentations” – which can be understood as memory traces reproducing entities perceived in the external world – are linked with “word-presentations” – memory traces of linguistic symbols – he or she becomes more capable of articulating psychic contents (Freud, 1962).

Freud (1962) theorized that the articulation of fantasies allows them to be carried from the seemingly untouchable realm of the unconscious to consciousness, where they can be considered in comparison to realistic constraints (the operation of the reality principle). Language thus played a crucial role in a return to psychological health: It was the means by which repressed, conflict-generating content, the forbidden wishes against which psychological defenses are deployed, are transported to the realm of secondary process thinking. By articulating the contents of their unconscious, people gain more control over their lives: They are no longer susceptible to the manifestation of primitive drives in their behavior, and they become more flexible in their deployment of defenses against their unconscious desires (Freud, 1962). Shapiro (2000) neatly states how this principle is put to use in psychotherapy: “When we interpret the unconscious we interpret in sentence form what ... only had been

translated into action dispositions. ... Now the stated verbalization would reside as a recovered thought that would serve as an action modulator in the face of known realistic consequences” (p. 192).

The importance of giving verbal expression to one’s psychic interior has pervaded the psychodynamic tradition. However, later thinkers challenged the notion of whether the power of language solely resided in its ability to promote reality-based thinking (Loewald, 1978; Mitchell, 1998; Stern, 1985). These theorists focused on the emotions inherent in language acquisition and verbal expression, expanding our notions of the role language plays in psychological health.

In his exploration of psychological development, Stern (1985) focused on the richness of the infant’s earliest verbal interactions. In healthy relationships, Stern (1985) posited that these communications are marked by affect associated with interpersonal closeness and sensory pleasure. When the child acquires language, however, it loses its association to these early affects (Stern, 1985). Stern (1985) considered the loss of these associations as part of an unfortunate renunciation the individual must make in order to take part in a social world that prizes rationality. Language, he posited, loses many of the aspects that made it pleasurable (Stern, 1985).

Loewald (1978), in contrast, did not believe that more mature forms of language use shed their primordial, pleasurable features. He suggested that the individual’s developmental experience of language would ideally result in an ability to use language for rational ends while still experiencing the emotional power with which it was imbued in early life (Loewald, 1978). His conception of language’s emotional power is tied to a theory of development in which an individual evolves from experiencing the world

(including the self) as an undifferentiated whole to experiencing it as an entity composed of myriad differentiated entities (Loewald, 1978). In infancy, for example, various aspects of experience are undifferentiated (Loewald, 1978). A baby's experience of being gently spoken to by a mother is not coded as, "mother, with a soothing voice, is speaking to me," but rather as a benevolent whole in which voice, facial expression, and – importantly – words, are merged (Mitchell, 1998). As the child learns that certain words symbolize specific entities, he becomes more skilled at communicating, and perhaps rationally processing his own emotions. But, ideally his words are not dissociated from the feelings that once accompanied them and the concrete objects to which they referred. To use the above example, if an individual is developmentally capable of the linguistic representation, "this other person, with a soothing voice, spoke to me," the sensory and affective elements of the represented experience are also invoked (Mitchell, 1998).

Loewald (1978) suggested that language that becomes too far removed from affect and sensation exists purely in the realm of secondary process, and lacks expressive power, while language that remains fused with affect and objects exists purely in the realm of primary process and does not enhance the user's access to logic and rationality. Mitchell (1998) took Loewald's stance to mean that therapists should be wary of idealizing the secondary-process functions of language: "If language has been drawn too completely into secondary-process functions, if the original affective density of language has been almost completely severed, the result is a functionally competent but affectively dead and empty life" (p. 833). As an example of language retaining its connection to the realm of primary process, Loewald (1978) pointed out

the poet's ability to use words to elicit emotion and imagery in a reader. Loewald's (1978) approach thereby expanded the theoretical role of language in psychological health: Not only does it allow for rational thinking, but it also potentially keeps us connected to the powerful feelings of infancy, when events were not experienced as combinations of differentiated details, but as wholes permeated by affect. Language provides us a tool with which to identify differentiated details, but potentially retains the pleasure of early interpersonal experience, at which time it was acquired. His suggestion that one's relationship to language varies based on the degree to which it retains this connection implies that individuals have different relationships with language: For some, it enhances reality-based functioning while also evoking affects that enliven experience (the ideal balance); for others, it enhances reality-based functioning at the expense of energizing affects; for others, it does not do enough to keep the individual grounded in reality. (Loewald, 1978).

Rizzuto (2002) furthered the theoretical investigation into how early experiences condition one's relationship with verbal expression. Focusing on the infant's relationship with a caregiver during language acquisition, she posited that this early experience is likely to affect every subsequent experience of meaningful verbal engagement (Rizzuto, 2002). As a result, in language-based healing processes such as psychotherapy, "the specific difficulties encountered by analysands in the effort to free associate result not only from their neurotic conflicts but also from the reawakening of problems encountered with parents and family during the development formation of the structure of the speech event" (Rizzuto, 2002, p. 1336). In that sense, the entities represented by certain words (in Freud's formulation, these entities would be forbidden

wishes and fantasies) are not the only elements of language that stand in the way of expression. The individual might also face challenges to articulation created by the legacy of his or her earliest experiences with learning how to put things into words. For example, an individual whose earliest efforts at expressing their feelings to his parents were ignored might become convinced of the futility of putting feelings into words and therefore not develop linguistically, seeing no reason to do so. Rizzuto (2002) stresses that the therapist must deploy language in the right way – paying attention to word choice, tone, and prosody – in order to convey to a patient that it is safe to engage in conversation. By extension, engaging in everyday speech outside therapy sessions might also give rise to various sensations and feelings regarding the safety and effectiveness of verbal exchange – feelings conditioned by experiences with verbal communication throughout development (Rizzuto, 2002). As with Loewald (1978), an implication here is that there are individual differences in attitudes and emotions surrounding verbal production that affect a patient’s experience of expressing their inner world (Rizzuto, 2002).

Later theorists, combining tenets of the psychoanalytic tradition with discoveries from cognitive science, characterized the language system as a code that communicates sensory and bodily experiences (Bucci et al., 2016). For these thinkers, the crucial dichotomy is not unconsciousness versus consciousness, or primary-process versus secondary-process thinking. Rather, an individual employs subsymbolic and symbolic systems, where the subsymbolic is, “dominated by motoric, somatic, autonomic, and visceral systems” and the symbolic consists of, “visual images, language, and representations from other sensory modalities” (Fertuck, 2004, p. 14). In

articulating an experience, an individual encodes bodily experience with language (Bucci et al., 2016). When the listener receives the code, the words potentially create a bodily experience in the other (for example, in an ideally empathic response, the listener experiences bodily precisely the feelings the speaker represented with language) (Bucci et al., 2016).

Bucci et al. (2016) hold that certain types of language use, particularly those that vividly describe experience, are especially effective in instantiating emotional states in those who receive the verbal message. Effective conveyance of an emotion is often indirect in that it is not necessarily a verbal report labeling an emotional state, but can also be an elaborate, concrete description of an experience that refers to entities outside the individual (Bucci et al., 2016). Like Loewald (1978), the authors contended that literature, in particular, uses a variety of linguistic techniques to instill an emotional experience in the reader (Bucci et al., 2016). Notably, Bucci (1984) advanced the discourse on individual linguistic differences when she discovered differences in the way people express themselves, indicating that some individuals use words that convey greater emotional impact (this finding will be discussed further in the “Individual Differences” section, below). One’s word choice, therefore, affects the degree of emotion he or she conveys in communications.

The importance of verbal expression to psychological health is explicitly stated by clinicians who contend that psychotherapy aims to help patients revise the linguistic structures (e.g., narratives and representations) that aid in self-understanding (Angus & Kagan, 2013; Pos & Greenberg, 2007). For example, certain proponents of emotion-focused therapy (EFT) conceive of treatment as an effort to effect psychological change

by altering the internal narratives harbored by patients. These practitioners suggest that patients seek therapy when their “self-narratives” – stories they tell to integrate and make meaning of their life experiences – cease to provide adequate explanations (Angus & Kagan, 2013). The goal of the intervention is to help the patient arrive at a “revised, more emotionally differentiated self-account” that reflects increased self-knowledge (Angus & Kagan, 2013, p. 526). EFT views the therapist as someone who helps patients find the right language to describe internal feeling states (Pos & Greenberg, 2007). It stands to reason that an individual’s interest in language would impact their ability to capitalize on a healing process with a strong emphasis on representation and narrative.

In summary, the theoretical role of language use in mental health has broadened since Freud’s initial ideas about the benefits of articulation. Words were once seen as vehicles that could carry forbidden ideas into the realm of secondary process (Freud, 1962). In this formulation, articulation was regarded as beneficial because it freed the individual from employing overly restrictive defenses against forbidden ideas (Freud, 1962). This process also prevented the individual from acting on these ideas in harmful ways (Freud, 1962). Later theorists, in contrast, focused on the emotions surrounding articulation. In Loewald’s (1978) formulation, language is beneficial because, in addition to its secondary-process function, it maintains our connection to infantile feelings. Rizzuto posited that individuals have different feelings about the act of articulation itself based on developmental experiences (2002). Bucci et al. (2016) viewed language as a symbolic code involved in the transmission of emotional states. Certain EFT practitioners characterized therapy as a process in which individuals learn

a more adaptive way to capture their life stories with language (Angus & Kagan, 2013). Finally, some of these theorists recognized literary uses of language as particularly adept at capturing the subjective world (Bucci et al., 2016; Loewald, 1978).

Taken together, these theories suggest that linguistic expression has the following characteristics: It 1) is involved in helping the individual consider his or her internal world more realistically; 2) maintains access to emotions from earlier in development (Loewald, 1978); 3) transmits emotions from one individual to another (Bucci et al., 2016); 4) enhances self-understanding (Angus & Kagan, 2013); and 5) can be used artistically to effectively capture and invoke feelings (Bucci et al., 2016; Loewald, 1978). Moreover, theorists have posited that individuals have different experiences and styles of expressing themselves via language, which affects the impact of language-based experiences (Bucci et al., 2016; Loewald, 1978; Rizzuto, 2002).

Importantly, a construct known as psychological mindedness has been developed that purports to capture some of the theorized psychological functions of language. Psychological mindedness is the degree to which an individual reflects upon the emotions and thoughts constituting his or her inner world (Conte et al., 1990). Individuals high in psychological mindedness are thought to be interested in exploring their emotions, thoughts, and motivations, as well as understanding the relationships between these elements of the psyche (Conte, Ratto, & Karasu, 1996). Theories about individuals' relationships with language suggest that words aid in the understanding of these elements. If an individual is inclined to put things into words, he might be able to articulate the contents of his or her mind – thus converting them to a form that is conducive to self-understanding and psychological growth. In light of these ideas, it is

possible that a key to understanding an individual's psychic functioning is understanding their feelings about linguistic expression and interest in developing this capacity.

### **Empirical Approaches to Verbal Exposure and Production**

The above theoretical discourse introduced several important ideas about the importance of linguistic expression; however, it was predominantly based on clinical observation. Crucially, there exists an empirical literature that bolsters the theoretical link between linguistic expression and aspects of mental health. Specifically, these studies have provided evidence that language-based characteristics are linked to cognitive, emotional, and behavioral capacities. This research has focused on both individuals' exposure to language through activities such as reading (Bavishi, Slade, & Levy, 2016; Djikic, Oatley, & Moldoveanu, 2013; Kidd & Castano, 2013) and production of language through writing and speaking (Astington & Jenkins, 1999; Pennebaker, 1997; Vallotton & Ayoub, 2011). Both processes – exposure and production – have been linked to indices of psychological functioning, suggesting the benefits of developing an interest in verbal and written expression (Bavishi et al., 2016; Pennebaker, 1997).

### **Exposure to Written and Verbal Expression**

Research has indicated that reading books has positive effects, both physically and emotionally. A study of participants age 50 and above found that book readers live longer, on average, than non-book readers and periodical readers, even when controlling for covariates such as health, wealth, age, sex, depression, and other variables (Bavishi et al., 2016). Additional research has linked exposure to fiction to

specific psychological capacities, including empathy (Djikic et al., 2013; Oatley, 2016) and the related concept of theory of mind (ToM), or the ability to understand the thoughts, feelings, and motivations of others (Kidd & Castano, 2013). Kidd and Castano (2013), who measured participants' performance on ToM exercises after exposure to different types of reading, found that literary fiction had a greater impact on ToM than popular fiction and nonfiction. Similarly, Djikic et al. (2013) found that participants who reported more fiction reading throughout their lives showed increased empathy (though it should be noted that their study, which was correlational, did not support a causative relationship between fiction reading and empathy). Kidd and Castano (2013) posited that literary fiction requires readers to recruit their ToM skills in order to understand the inner states of complicated characters; the fact that readers are practicing these skills in a fictional context allows them to explore these inner states free from the perils of real-life consequences.

While the above studies were conducted with adults, additional investigations have probed the effects of early exposure to language-rich environments in children. Developmental psychologists have demonstrated a link between verbal interactions during childhood and cognitive capacities. Hart and Risley (1992) found that children's IQ's were positively related to the number of questions they were asked by parents and the number of times their parents repeated and elaborated what the children said. A milieu in which listening and conversation were encouraged thus appeared to have positive effects on a child's intelligence. However, the higher the family's socioeconomic status, the more likely parental behaviors associated with high IQ of offspring would be prevalent, suggesting that socioeconomic status might account for

the relationship between the verbal environment provided by parents and children's IQ. In other words, the investigators could not assert a definitive link between the verbal environment and intelligence because other aspects of the environment determined by financial well-being could account for improved cognitive capacities. Importantly, another study (Walker, Greenwood, Hart, & Carta, 1994) established a link between early language use and later cognitive capacities while controlling for socioeconomic status. This study found that total number of different words spoken by a child between 7 and 36 months of age predicted IQ at 36 months independently of parental income. The spoken vocabulary of children during the above age range also predicted skills in spoken language, spelling achievement, reading achievement, and verbal ability independently of socioeconomic status as late as the third grade. These results suggest that children with more diverse vocabularies during toddlerhood also enjoy academic advantages deeper into development.

### **Verbal Production**

Studies in developmental psychology have also uncovered connections between verbal capabilities and personal qualities related to emotional stability and social skills. Evidence suggests that, in toddlers, language capacity is related to self-regulation, the ability to adjust one's behavior in accordance with social expectations; self-regulation is also linked to prosocial behaviors and the ability to learn in different environments (Vallotton & Ayoub, 2011). Vallotton and Ayoub (2011) studied two properties of toddler's linguistic abilities – vocabulary and talkativeness. Interestingly, the authors found that while both capacities were related to self-regulation, vocabulary was a better predictor: Greater vocabularies predicted greater self-regulation concurrently and in the

future. The authors speculated that the more words an individual has at his or her disposal, the broader the array of symbols he or she has to regulate thoughts, feelings, and behaviors.

Astington and Jenkins (1999) explored the relationship between language capacities and ToM. Investigating the proposition that basic linguistic abilities must be established before a child develops ToM, the authors conducted a longitudinal study that allowed them to determine the relationship between language abilities and ToM at three time points. Their design enabled them to investigate whether language abilities predicted future levels of ToM, and vice versa. In their sample of 3-year-olds, the authors found that language capacity predicted future ToM results, but not the other way around. Furthermore, the authors found that syntactical mastery had a greater effect on future theory of mind than semantic mastery. They suggested that a greater understanding of language syntax allowed children to compare another's version of reality to their own. For example, without an understanding of syntax, a child would not be able to think, "He believes the cat is behind the couch, but I can see she is on the table."

Among adults, Pennebaker's (1997) expressive writing paradigm has demonstrated the benefits of putting feelings into words. The expressive writing paradigm involves an exercise in which individuals write about important events in their lives as well as the emotions evoked by these incidents, thus giving linguistic form to their external and internal experiences (Pennebaker, 1997). This intervention has been linked to positive outcomes in a variety of populations, including dating couples (Slatcher & Pennebaker, 2006), PTSD patients (Nixon & Kling, 2009), and HIV-

positive individuals (Petrie, Fontanilla, Thomas, Booth, & Pennebaker, 2004). Its efficacy has been assessed by a variety of indices, ranging from emotional measures to reemployment data (Smyth, 1998). To account for the benefits of expressive writing, two main theories have been advanced (Pennebaker, 1997). One explanation, similar to the notion of cathartic healing, is that writing about painful experiences allows for the disclosure of material that individuals have been holding inside. Prior to the intervention, the inhibition of this expression requires physical and psychological energy, but once the information is disclosed new resources are available for other tasks (Pennebaker, 1997). Another explanation is that writing helps individuals encode painful experiences into language. Once encoded, these experiences are easier to process and no longer require emotional and intellectual resources (Pennebaker, 1997).

The success of this protocol has spawned studies on whether its benefits are related to changes in the style and content of participants' writing. Text analyses showing an increase in cognition-related words among participants who benefited from expressive writing suggest the exercise was beneficial because it helped individuals come to a new understanding of important life events (Pennebaker & Seagal, 1999; Seih, Chung, & Pennebaker, 2011). Another exploratory analysis (Campbell & Pennebaker, 2003) found that changes in writing style, especially pronoun usage, predicted positive health outcomes. The authors speculated that a flexible approach to the representation of emotional experiences yields health benefits; because pronouns are related to perspective (e.g., "I" vs. "you," "us vs. them"), the investigators proposed that the ability to change perspectives (i.e., flexibility) could be related to improved health. In a clinical population, Fertuck, Bucci, Blatt, and Ford (2004) examined

whether symptom reduction was accompanied by changes in verbal style. The researchers found that clinical improvement was related to an increase in verbal representations of subsymbolic material and an increase in language describing emotional states.

### **Individual Differences**

The research described above is suggestive that individuals benefit from exposure to language-rich environments, as well as the opportunity and/or ability to represent their inner worlds via language. Moreover, this research suggests that different types of verbal and written expression are related to improved psychological functioning, whether via advanced syntax (Astington & Jenkins, 1999) or vocabulary (Vallotton & Ayoub, 2011) among children, or cognition-related (Pennebaker & Seagal, 1999; Seih et al., 2011) or emotion-related (Fertuck et al., 2004) words among adults. While the theoretical literature implies an individual's relationship with language could affect his or her capacity to utilize language in the service of mental health, the empirical literature shows that individuals do indeed express themselves differently; furthermore, the above studies show that individual linguistic differences are related to individual differences on indices of psychological functioning. Considered in tandem, these two discourses suggest the benefits of further investigating individual differences in relationships to language. Unfortunately, there is currently only a limited array of measures that assess individual differences regarding language, reading, and writing, and these measures do not optimally position us to examine the mental health benefits of verbal and written expression.

Of the existing measures, many assess verbal skills as a cognitive capacity. Psychological evaluations routinely employ instruments such as the Wechsler Adult Intelligence Scales (Wechsler, 2014) and the Wechsler Individual Achievement Test (Wechsler, 2009), which include measures of verbal skills such as breadth of vocabulary, understanding similarities between words, oral reading skills, reading comprehension, and the ability to write a well-organized essay. These measures are useful in assessing intellectual capacities, but do not assess other aspects of an individual's relationship to the material, such as her interest in it, her desire to improve knowledge and performance, or the amount of pleasure she derives from it. The relationship between language use and emotional processing is outside the scope of these instruments. Moreover, these instruments assess optimal performance in test situations rather than typical functioning. Intelligence researchers, recognizing this issue, developed measures of intellectual curiosity, which aim to capture an individual's motivation to learn and be intellectually engaged – not just during academic assessments but also in non-academic milieus and situations (Cacioppo, Petty, Feinstein, & Jarvis, 1996; Goff & Ackerman, 1992).

Bucci (1984) identified individual differences in level of referential activity, or the degree to which individuals are able to link verbal and non-verbal representations. Research has shown that individuals who are able to more quickly attach verbal symbols to non-verbal percepts are also more likely to describe experiences in concrete terms and describe visual perceptions via metaphor. Individuals who score low on referential activity, on the other hand, tend to describe experiences in abstract, general

terms; Bucci (1984) hypothesized that this was because they rely on links between words when expressing themselves, rather than links between words and objects.

Bucci's study represented a significant advance in understanding differences in cognitive processing, in particular the links between verbal and non-verbal systems of representation. However, the impact of these differences on emotional experience was not examined. Şimşek (2010) aimed to apply Bucci's conceptualization of language as a representative network to emotional wellbeing by studying individual differences in the representation of emotional states. Instead of using concrete objects as the targets of verbal representation, the author examined links between language and more abstract elements of the internal world – namely, emotions, thoughts, and moods.

Representation of these concepts is a more complicated endeavor, as they do not have correlates in the external world (i.e., a representation of a tree is informed by experiences with actual trees, but a representation of feeling has no real-world object to which it corresponds) (Şimşek, 2010). In order to convey one's internal state to another person, one must arrange symbols in such a way as to create an impression of an entity that is not apprehended through the senses (Şimşek, 2010). In response, Şimşek (2010) developed the Belief About Functions of Language Scale (BAFL), which assessed individuals' beliefs about whether language can effectively symbolize and communicate subjective experience.

Based on the notion that belief in the power of language would lead to psychological health, Şimşek (2010) predicted that his scale would be correlated with measures that assess presence of psychopathology. Indeed, the author found that the BAFL was significantly correlated with scales assessing levels of anxiety, depression,

negative self-concept, somatization, and hostility. These results suggested that positive beliefs about language's ability to capture and convey internal states yield mental health benefits.

However, when examining some of its individual items, it is not surprising that the scale correlates with different types of negative feeling states: "No matter how hard I try to express myself to people, I do not believe that anybody can understand me exactly"; "I do not feel that people can fully understand the words I use to express myself"; "When I communicate myself, I feel I am confined by the boundaries of language"; "Sometimes I think there is a gap between my feelings and the corresponding words." Although these items appear to address the felt efficacy of verbal expression, they also arguably tap into feelings regarding social isolation, self-alienation, and futility of efforts at interpersonal connection. It is conceivable that this scale, while an important effort to gauge the nature of an individual's relationship to language, focuses too heavily on perceived limitations of language and communication. Moreover, the BAFL does not take into account whether individuals' experiences with different forms of language (written versus spoken) elicit different kinds of beliefs.

The current project aims to develop a scale that assesses an individual's relationship to language in a novel way. In contrast to measures of verbal capacity (e.g., the WAIS), I aim to create a scale that measures an individual's everyday experience of written and verbal expression, as opposed to their optimal writing, reading, and language abilities. In other words, this scale does not aim to capture an individual's verbal capacities as assessed under test conditions, when they are instructed to perform to the best of their ability (for example, the results yielded by the

WAIS or another cognitive instrument); rather, this scale is intended to capture an individual's feelings about experiencing linguistic expression as part of their daily lives. In contrast to the BAFL, I aim to create a scale that does not directly ask about beliefs about the efficacy of language, that takes both verbal and written expression into account, and that does not risk focusing too heavily on the limitations of language. Although the BAFL's explicit recognition of the link between language and emotion is a strength, it is also a weakness because responses to the scale might be driven by emotional states independent of one's relationship to language. My scale, entitled Interest in Verbal and Written Expression (IVWEQ), aims to more purely assess an individual's interest in the linguistic tools of expression, rather than their beliefs about the efficacy of such tools.

One of the goals of this study is to determine whether a scale can be created that adequately assesses individual differences regarding participants' relationships with language. I aim to answer the question of whether the theorized differences in individuals' relationships with language can be captured by a survey. For such a survey to be effective, the items must be internally consistent – that is, they must be related to one another enough to suggest that they are all elements of a common construct. Therefore, I aim to develop items that theoretically measure an individual's interest in verbal and written expression and then determine whether they are related to one another. If they are related to one another to a sufficient degree, then I can be confident that they are contributing to the measurement of a single construct that encapsulates an individual's interest in language.

Another goal is to determine whether an interest in verbal and written in verbal and written expression (assuming that my scale is internally consistent) consists of sub-constructs. That is, are there different aspects of interest in verbal and written expression that are related to – but still distinct from – my general concept, as well as distinct from each other? To determine whether this is the case, I will conduct factor analyses to determine whether certain items coalesce into theoretically consistent sub-constructs.

Finally, the theoretical and empirical literatures suggest that individuals' relationships with language are linked to their ability to understand their own motivations, emotions, and behaviors, as well as convey their feelings to others. Therefore, I aimed to determine whether my scale is statistically linked to psychological mindedness, the degree to which an individual reflects on and shares the contents of his or her inner world (Conte et al., 1990). Statistical evidence of a relationship between my scale and a scale measuring psychological mindedness would suggest that an individual's relationship with language is linked to the degree to which he is inclined to consider the contents of his inner world and represent these contents to others.

## CHAPTER 2

### STUDY 1

Study 1 consisted of two parts: a) development of items to be included in the IVWEQ, determination of factor structure, and an assessment of its internal consistency reliability; and b) exploring the relationship of the IVWEQ to a theoretical correlate.

#### **Study 1a: Scale Development and Factor Structure**

##### **Hypotheses**

###### *Hypothesis 1*

Following refinement of the IVWEQ, I expect the scale to show internal consistency. In other words, I expect to obtain statistical support for the notion that the IVWEQ represents a single construct.

###### *Hypothesis 2*

I expect the factors that emerge from my exploratory factor analysis to show internal consistency.

##### **Method**

###### *Measure*

I developed the items of the IVWEQ under the guidance of Dr. John Lounsbury, a professor of psychometrics. I aimed to create items that asked individuals about their engagement in everyday language-related behaviors and activities, as well as thoughts and feelings about language-related capabilities that would reflect an interest in verbal and written expression. I placed an importance on creating items that referred to language-related experiences or ideas that would be familiar to most respondents (e.g., whether they enjoy completing crossword puzzles, whether they are inclined to quote

Shakespeare or memorable poems and songs, and whether a teacher's use of language impressed them). Moreover, I aimed to ask about behaviors that covered various aspects of interest in verbal and written expression: (1) their devotion to improving certain language skills; (2) the degree of pleasure they derive from learning about language; (3) their interest in language-based art; and (4) the degree to which verbal and written expression affect their interpersonal interactions (see page 94 for a complete list of the original 29 items). Items were scored on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral/don't know, 4 = agree, 5 = strongly agree).

### ***Participants***

The scale was initially administered online to 81 participants. Thirty-one of these participants were recruited via Facebook, a social networking site, while another 50 were recruited via *Amazon Turk*, an online service that connects a "requester" (in this case, the author of the survey) with "workers" willing to perform a task (completion of the survey) for a small fee. The Facebook participants were provided no description of the survey prior to completing it. The Amazon Turk participants were invited to sign up for a study entitled "Attitude Toward Verbal and Written Expression Questionnaire" with the following description: "We would like to know more about your attitude toward verbal and written expression." The *Amazon Turk* workers were awarded \$0.15 for each survey completed.

### ***Procedure***

The author uploaded the IVWEQ to Qualtrics.com, a Web site that allows surveys to be posted and completed online. Once the survey was uploaded, individuals were able to click on a link and complete the survey. On Facebook, individuals did so

voluntarily, and on Amazon Turk they did so with the promise of a small payment (mentioned above). Only the principal investigator had access to survey results. The IVWEQ took approximately 5 minutes to complete. After collecting data, I analyzed them with a factor analysis and internal consistency analysis using the computer program Statistical Package for the Social Sciences (SPSS; IBM Corp., 2012).

**Factor Analysis.** Researchers conduct factor analyses to determine whether arrays of observed variables can be reduced to smaller numbers of latent variables (P. Kline, 2000). In the case of test development, each item on a scale represents an observed variable. A factor analysis examines the correlations between these observed variables to determine whether a smaller number of latent variables accounts for these correlations (Field, 2009). The latent variables are also referred to as factors. Factor analysis can result in the division of a scale into multiple subscales, each of which measures an individual's score on a particular latent variable (Brown, 2015). In other words, while a scale might measure a single construct, it might also consist of multiple “sub-constructs” that are distinct from one another but also related to the parent construct.

**Exploratory Factor Analysis.** When an investigator does not have a hypothesis regarding the latent variables that might account for the variance in a scale, he or she uses an exploratory factor analysis (EFA) to determine the number and nature of these latent variables (Stellefson & Hanik, 2008). In my pilot study, I conducted an EFA because I had no hypothesis regarding the presence of latent variables. My EFA consisted of three steps: (1) principal components analysis, (2) parallel analysis, and (3) factor rotation. Principal components analysis, in conjunction with parallel analysis,

indicates the number of factors that should be retained (O'Connor, 2000). Factor rotation helps the investigator determine which items are associated with each latent variable (P. Kline, 2000). I repeated this sequence of steps 3 times to obtain the best factor solution for my data.

**Principal Components Analysis.** A principal components analysis uses the correlations between the observed variables to determine the amount of variance in item responses explained by latent factors (Kline, 1994). The amount of variance accounted for by each factor is represented by the eigenvalue (Field, 2009). The larger the eigenvalue, the greater the proportion of variance explained by that latent variable (Stellefson & Hanik, 2008). In addition, principal components analysis yields two statistics that indicate whether the results of item responses can be factored: the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity (Field, 2009). If  $KMO > 0.5$  and Bartlett's Test of Sphericity  $p < .05$ , then the results are considered to be factorable (Field, 2009).

**Parallel Analysis.** In parallel analysis, each eigenvalue generated by the principal components analysis is compared against the means of eigenvalues that would be randomly generated if a sample the same size as the experimental sample were measured on an equal number of variables (O'Connor, 2000). If a factor's eigenvalue exceeds the mean eigenvalue that is randomly generated, then that factor is retained (O'Connor, 2000).

**Factor Rotation.** After a researcher determines the number of factors to extract, a factor rotation is conducted. A factor rotation helps determine which observed variables are associated with each underlying variable; these relationships are

represented by a numerical value, a factor loading (Kline, 1994). Factor loadings  $< 0.3$  suggest that an item's relationship with a factor is minor (Costello & Osborne, 2005). Moreover, items loading heavily on more than one factor ( $> 0.3$ ) are often discarded because they do not clearly contribute to one of the factors (Costello & Osborne, 2005).

After the factor rotation is conducted, the researcher examines the items that are associated with each factor and looks for a common theme among the items (Field, 2009). If the researcher is able to identify a common theme, then he or she can conclude that the factor pertains to that particular theme (Field, 2009). After performing a factor rotation, I shortened my scale by eliminating those items that loaded heavily on more than one factor, as well as eliminating those items that were not theoretically related to their factors.

**Orthogonal Versus Oblique Factor Rotation.** Depending on their expectations of the data, researchers must choose between several factor rotation methods. Whereas orthogonal rotations (e.g., Varimax rotation) obtain factor solutions in which the latent variables are uncorrelated, oblique rotations (e.g., Direct Oblimin rotation) obtain factor solutions in which the latent variables are correlated (Costello & Osborne, 2005). In my pilot study, I conducted factor analysis using Direct Oblimin rotation because I expected a correlation between my factors. That is, I expected constructs related to interest in verbal and written expression to be related to one another.

**Internal Consistency Analysis.** An internal consistency analysis assesses whether the items of a scale are measuring the same construct. Researchers frequently use the Cronbach's alpha ( $\alpha$ ) statistic, which is based on item inter-correlations, to

measure internal consistency; the threshold for internal consistency is  $\alpha > 0.70$  (P. Kline, 2000). Based on the results of my factor analysis, I conducted an internal consistency analysis on the IVWEQ as a whole and the latent factors that emerged. If  $\alpha > 0.70$  for the overall scale and the latent factors, then I could conclude that the items of these scales are measuring the same construct.

## **Results**

### ***Principal Components Analysis and Parallel Analysis***

In my pilot study, the initial principal components analysis yielded a KMO of .763 and a Bartlett's Test of Sphericity  $p < .001$ , suggesting that the 29 items were factorable. The principal components analysis, in conjunction with parallel analysis, revealed that 3 factors had eigenvalues greater than randomly generated eigenvalues (see Table 2 for the results of the parallel analysis). I therefore extracted 3 factors. See Table 3 for the loadings of each item.

### ***Factor Rotation***

The Direct Oblimin rotation revealed the loadings of each scale item on each factor (see Table 4). Figure 1 provides a visual representation of the factor structure suggested by these loadings. After examining the factor loadings, I concluded that the first factor reflected an individual's interest in language and literature (e.g., "I am interested in learning about how the meanings of words change over time" and "I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater"). I concluded that the second factor reflected an individual's awareness of language in social interactions (e.g., "My favorite teachers have had the ability to use language skillfully" and "I prefer that people regard me as articulate and polished in the

way I express my ideas”). Finally, I concluded that the third factor pertained to negative feelings regarding language use. Items loading on this factor included: “I become embarrassed when I use a word incorrectly”; “I am irritated by misspellings and glaring grammatical errors in emails”; “I get annoyed by people who use words incorrectly”; and “I am turned off when people use clichés (i.e., phrases that have been used so often that they are no longer interesting).” I decided that these items did not belong in the IVWEQ because they appeared to assess how an individual feels in response to uses of language that are incorrect or unimaginative. Although these items could reflect an individual’s interest in using language correctly or creatively, they could also reflect a more general tendency to feel negatively as a result of others’ failure to observe conventions or be original.

### ***Second Iteration of EFA***

I therefore conducted another principal components analysis, in conjunction with parallel analysis, after removing the 4 negative emotion items. This analysis indicated that 2 factors should be retained, providing evidence that, once the negative emotion items were removed, there are 2 variables underlying the items on the IVWEQ (see Table 5). However, after I conducted another Direct Oblimin rotation, the 2-factor solution did not appear to suit a number of items (see Table 6). Some of these items had small factor loadings ( $< .3$ ) on both factors (e.g., “I like to solve crossword puzzles”; “I enjoy good puns”). These items were removed from the scale. Another item, “I like it when others quote great literature to me,” loaded heavily ( $> .3$ ) on both factors, while another, “I enjoy engaging in wordplay with friends,” was theoretically linked to both factors. These items were also removed to eliminate redundancy. Other

items did not appear to be theoretically linked to the factors with which they correlated, and these were also deleted. Examples of these items included “I believe that the way words sound, and not just their meaning, have an impact on the messages they convey in speech or writing” and “People should place a higher value on the ability to write an elegantly worded paper.” All together, 8 items were removed during this phase of the analysis, leaving 17 items.

### ***Final Iteration of EFA***

A principal components analysis of the remaining 17 items also yielded a 2-factor solution (see Table 7). The KMO value (.791) and Bartlett’s Test of Sphericity ( $p < .001$ ) indicated that this group of items was factorable. Following a Direct Oblimin rotation analysis, none of the items were redundant – that is, they only loaded heavily ( $> .3$ ) on one of the underlying factors (see Table 8). This model accounted for 49.88% of the variance in item responses. The factors, Interest in Language and Literature and Awareness of Language in Social Interactions, were positively, moderately correlated,  $r = .369$ . See Figure 2 for a visual depiction of this factor solution.

### ***Internal Consistency Analysis***

I conducted three reliability analyses to determine whether the full IVWEQ and the two subscales – provisionally called (1) Interest in Language and Literature and (2) Awareness of Language in Social Interactions – were internally consistent. These analyses indicated that, for the full 17-item IVWEQ,  $\alpha = 0.89$  (see Table 9 for item-total correlations); for the 10-item Interest in Language and Literature,  $\alpha = 0.89$  (see Table 10 for item-total correlations); and for the 7-item Awareness of Language in

Social Interactions,  $\alpha = 0.81$  (see Table 11 for item-total correlations). Because all of these values exceeded .70, I concluded that the full IVWEQ and its subscales were internally consistent, as my hypotheses predicted.

### **Study 1b: Correlation**

Study 1a provided preliminary evidence that the IVWEQ is internally consistent and consists of two internally consistent subscales. However, it left open the question of whether the IVWEQ predicts additional psychological constructs. If the IVWEQ is statistically related to other constructs, then one might argue that its meaning extends beyond merely measuring an individual quality; one might also argue that this individual quality is related to other qualities that play roles in psychological functioning. Study 1b was thus designed to determine whether there is statistical evidence that the IVWEQ might be linked to a theoretically related construct, psychological mindedness. This represented the first step toward examining whether there is quantitative support for hypothesized link between interest in verbal and written expression and an individual's tendency to explore their inner world and share it with others. Moreover, this study made a preliminary effort to address the theory-derived notion that childhood exposure to language-based activities would be related to interest in language in later life.

### **Hypotheses**

#### ***Hypothesis 1***

I predicted that interest in verbal and written expression would be significantly, positively correlated with psychological mindedness, the degree to which an individual reflects upon the emotions and thoughts constituting his or her inner world (Conte et

al., 1990). This relationship was predicted because an interest in verbal and written expression theoretically indicates an individual's motivation to expand their ability to use language, one of the vehicles for representing inner emotional states and conveying these states to others. Indeed, a number of items on the Psychological Mindedness Scale (PMS), which measures the construct of psychological mindedness, probe for behaviors related to verbal communication of emotion (e.g., "When I have a problem, and I talk about it with a friend, I feel a lot better") or inclination to verbally share elements of experience with others (e.g., "It would not be difficult for me to talk about personal problems with people such as doctors and clergymen") (Conte et al., 1990).

### ***Hypothesis 2***

I predicted that interest in verbal and written expression would significantly, positively correlated with the item, "I have fond memories of a parent (or parents) reading to me as a child." I expected that a developmental experience in which a caregiver encouraged appreciation of language and written narrative would contribute to an adult's interest in verbal and written expression. Although correlation with a single item would be insufficient to establish this link, the item was included as a preliminary inquiry into this relationship.

### **Method**

#### ***Participants***

In the correlation analysis, 89 participants were recruited to complete my questionnaire. Twelve were recruited via Facebook, while 77 were recruited via Amazon Turk. While the Facebook participants were not provided a description of the survey, the Amazon Turk participants were invited to sign up for a "Communication,

Language, and Life Changes Questionnaire” with the following description: “We would like to know more about your attitude toward communication, language, and life changes.” The latter participants received \$0.40 per survey; the monetary reward was increased to compensate for the additional time required to complete the second round of items. The responses were anonymous.

### ***Procedure***

As in Study 1a, the refined IVWEQ and additional items were uploaded to Qualtrics. Both the Facebook and *Amazon Turk* participants were invited to participate in an online survey. The suite of items took approximately 10 minutes to complete. Only the principal investigator could view the responses.

### ***Measures***

**IVWEQ.** The refined IVWEQ scale consisted of the 17 items determined by my exploratory factor analysis. Items continued to be scored on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral/don’t know, 4 = agree, 5 = strongly agree).

**Psychological Mindedness Scale (PMS).** The PMS, a 45-item self-report questionnaire, measures the degree to which an individual reflects upon the emotions and thoughts constituting his or her inner world (Conte et al., 1990). The concept of psychological mindedness has been used to consider patients’ suitability for psychodynamic therapy, which places emphasis on exploring one’s emotional interior and using words to describe previously unarticulated feeling states (Shedler, 2012). The PMS has five factors: Willingness to try to understand oneself and others, openness to new ideas and capacity for change, access to one’s feelings, belief in the benefits of

discussing one's problems, and interest in meaning and motivation of own and others' behavior (Conte et al., 1996). The initial reliability analysis of the PMS found a Cronbach's Alpha of .86, indicating good internal consistency (Conte et al., 1990). The PMS has been validated against the Toronto Alexithymia Scale, which measures one's inability to recognize and articulate feelings; as predicted, researchers found a negative correlation ( $r = -.31, p = .01$ ; Shill & Lumley, 2002). The PMS items are rated on a 4-point scale ranging from "strongly agree" to "strongly disagree." See page 96 for a list of PMS items.

**Single Item.** An additional item probed for the presence of a pleasurable literary experience in early development: "I have fond memories of a parent (or parents) reading to me as a child." The inclusion of this item was driven by theoretical approaches to language production that suggest early verbal experiences have a lasting impact on the individual's attitude toward linguistic expression (Rizzuto, 2002).

## **Results**

A validity analysis revealed that the revised IVWEQ was significantly, moderately correlated with psychological mindedness ( $r = .456, p < .01$ ), providing support for my first hypothesis. My second hypothesis was also supported: the IVWEQ was significantly, moderately correlated with the item, "I have fond memories of a parent (or parents) reading to me as a child" ( $r = .348, p < .01$ ). See Table 12 for a list of item means and standard deviations; see Table 13 for a list of descriptive statistics for the single item and the total scores on the IVWEQ and the PMS.

## Limitations

The most significant limitation of the pilot study was the nature of the sample, particularly the abundance of participants recruited via *Amazon Turk*. While some studies have suggested that *Amazon Turk* workers provide adequate samples for research (Paolacci, Chandler, & Ipeirotis, 2010; Shapiro, Chandler, & Mueller, 2013), there is also evidence that *Amazon Turk* workers differ from the U.S. population in numerous ways (Paolacci & Chandler, 2014). For example, *Amazon Turk* workers have more education, on average, than individuals in the U.S., though they appear to earn less money (Paolacci et al., 2010). Shapiro et al. (2013) found that 24% of *Amazon Turk* workers were unemployed, compared to 8% of the U.S. population. In terms of personality traits, Goodman, Cryder, and Cheema (2013) found evidence suggesting that a sample of *Amazon Turk* workers are less extraverted, on average, than a community sample,  $F(1, 133) = 9.60, p < .01$ . These authors also found that *Amazon Turk* workers are less emotionally stable,  $F(1, 133) = 4.88, p < .05$ , and trend toward having lower self-esteem,  $F(1, 133) = 3.92, p < .05$ .

The level of psychopathology among *Amazon Turk* workers also suggests that samples from this source are not representative of the population as a whole. Shapiro et al. (2013) found that 50.5% of *Amazon Turk* workers endorsed symptoms indicating a clinical level of social anxiety, compared to a 12-month prevalence rate of 6.8% in the U.S. Arditte, Çek, Shaw, and Timpano (2016) found that *Amazon Turk* workers, compared to nonclinical samples, endorsed more physiological symptoms of anxiety ( $d=.70$ ), depression ( $d=.94$ ), social anxiety ( $d=.99$ ), and hoarding ( $d=.47$ ). Symptom endorsements of depression and social anxiety were very similar to those from a

clinical sample ( $d=.03$  and  $d=.06$ , respectively). These authors found that *Amazon Turk* workers endorsed symptoms surpassing the clinical cutoffs for social anxiety, depression, and obsessive compulsive disorder at rates far higher than the 12-month prevalence rates for those illnesses.

In addition to the differences between the *Amazon Turk* population and the U.S. population, the pilot study was limited in that it was conducted online. The experimenter thus had no control over the environments in which the participants completed the questionnaires. These environments could have contained distractions that affected the accuracy of the participants' responses. Relatedly, a limitation of the scale itself is a lack of items designed to detect random responding.

Lastly, the *Amazon Turk* workers responded to invitations that identified the study as being about "communication" and "language." While some of these workers could have been merely interested in the financial reward, others could have shared an interest in these subjects. The result could have been a sample that was not representative of the general population.

### **Brief Discussion**

The results of the pilot study are encouraging in that they helped establish a scale with a theoretically sound factor structure, as well as internal consistency among the overall scale and its subscales. The study also suggests a relationship between interest in written and verbal expression and psychological mindedness, providing evidence for a link between interest in the tools of expression itself and the degree to which an individual reflects upon his or her emotional interior and is inclined to share the contents of his or her inner world. Finally, the pilot study suggested a relationship

between a literary developmental experience and interest in verbal and written expression.

Nonetheless, it is essential to establish that the psychometric properties of the IVWEQ are consistent across samples (Brown, 2015). In the pilot study, the IVWEQ was administered to a sample of participants drawn heavily from *Amazon Turk*, a population that is different than the U.S. population in a number of ways. It is possible that the unique nature of this sample affected the results of the factor analysis, internal consistency reliability analyses, and validity analysis. Administering the IVWEQ to a new sample would allow me to determine whether these analyses yield similar results across multiple samples, providing additional support for the factor structure and internal consistency characteristics suggested by my pilot study analyses. Moreover, by administering the scale to participants in person, I could eliminate some of the distractions that participants in my pilot study might have faced when filling out the questionnaire online. To address the above issues, I conducted the IVWEQ with a college-aged sample, in person, with paper-and-pencil questionnaires.

## **CHAPTER 3**

### **STUDY 2**

Studies 1a and 1b, taken together, provided evidence for the internal consistency of the IVWEQ; suggested a 2-factor structure of the IVWEQ; provided evidence for the relationship between interest in verbal and written expression and psychological mindedness; and provided evidence for the relationship between my construct and childhood participation in a literary activity. However, because of the limitations described above, it was important to determine whether these results replicated in a different sample.

The goal of Study 2, therefore, was (1) to determine whether the factor structure of the IVWEQ determined in the pilot study replicated, (2) to determine whether the internal consistencies of the full IVWEQ scale and its subscales (Interest in Language and Literature and Appreciation of Verbal Interactions) replicated, and (3) to determine whether the relationships between the IVWEQ and other constructs replicate when administered to a new sample.

### **Hypotheses**

#### **Hypothesis 1**

I hypothesized that, after collecting responses to the IVWEQ from the college-aged sample, the data would fit the factor structure I derived from my pilot study. If my results supported this hypothesis, then I would have evidence suggesting that this scale measures the same constructs in different samples. Such evidence would suggest that the scale can measure the specified constructs in the general population, and not merely in my pilot study sample.

## **Hypothesis 2**

I hypothesized that the IVWEQ and its subscales would be internally consistent, replicating the results from the pilot study.

## **Hypothesis 3**

I hypothesized that the IVWEQ would be positively, significantly correlated with psychological mindedness and positive memories of being read to as a child. I used the same instrument I used in the pilot study, the Psychological Mindedness Scale (PMS), to measure psychological mindedness (see Table 11 for a list of PMS items). I also used the same single item I used in the pilot study: “I have fond memories of a parent (or parents) reading to me as a child.”

## **Method**

### **Participants**

In total, 254 subjects from several undergraduate classes, including introductory psychology classes, higher-level psychology classes, and English composition classes at the University of Tennessee-Knoxville, participated in the study. Students from introductory psychology classes were able to participate by signing up through a research recruiting portal for a study called “Reading, Writing, and Self-Expression.” These students were required to obtain a certain number of research credits to complete their classes; participation in my study provided partial satisfaction of this requirement. The other students were approached in their classes and asked to participate in a survey in exchange for class credit. Prior to being given the survey, each participant received a copy of an informed consent form that provided details about the study and whom to contact with any questions about the study. Each subject who signed the informed

consent form indicated that they were willing to participate and that they were at least 18 years of age at the time of the study.

### **Procedure**

After participants gave informed consent, I distributed hard copies of the IVWEQ and other questionnaires for them to fill out with pen or pencil. Pens and pencils were provided to participants who lacked writing implements. After the participants were finished, I collected their informed consent forms and questionnaires. The questionnaires were then separated from the informed consent forms to ensure that each respondent was anonymous. Following collection, the completed surveys and the informed consent forms were stored in a locked file cabinet in a locked laboratory room at the University of Tennessee-Knoxville. Therefore, the privacy of the participants was protected, and the informed consent forms could not be linked to the questionnaire results.

To test my first hypothesis – that the factor structure of the IVWEQ would replicate across samples – I conducted a confirmatory factor analysis (CFA). In a CFA, a researcher specifies a model to which the data is expected to conform (Kline, 1994). The model accounts for (1) the latent variables, (2) the correlation (or lack thereof) between the latent variables, and (3) the observed variables (test items) expected to be related to the latent variables. My model was designed to reflect my earlier finding of two latent variables – Interest in Language and Literature and Awareness of Language in Social Interactions. Because my Direct Oblimin rotation analysis found a positive, moderate correlation between these latent variables ( $r = .369$ ), I designed my model to reflect that these latent variables are correlated. Finally, my model reflected my

previous finding that 10 observed variables compose the Interest in Language and Literature factor, while 7 observed variables compose the Awareness of Language in Social Interactions. The confirmatory factor analysis determined whether the data collected from a college-aged sample fits this model.

I used the Statistical Package for the Social Sciences AMOS (IBM Corp., 2013) computer program, which allowed me to specify a factor structure and test whether it fit the data I collected from my college-aged sample. There are numerous statistical tests assessing the extent to which a model factor structure fits the data (Hooper, Coughlan, & Mullen, 2008). I followed the guidelines of R. B. Kline (2010), who recommends utilizing the Model Chi-Square ( $X^2$ ) test, the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Standardized Root Mean Square Residual (SRMR) (Hooper et al., 2008). The Model Chi-Square test assesses the hypothesis that the data does *not* fit the model (Hooper et al., 2008). Therefore, when this test indicates that the data is significantly different from what is predicted from the model,  $p < .05$ . Accordingly, if  $p > .05$ , one can conclude that the data is not significantly different from that predicted by the model, which provides support that the model is a good fit. For the other statistics, good model fit is indicated by an RMSEA  $< .08$ , a CFI  $> .9$ , and a SRMR  $< .08$  (Hooper et al., 2008). A CFA yielding values in these ranges would suggest that my model fits the data and that the scale's factor structure is consistent across different samples.

To test my second hypothesis, I conducted three analyses of internal consistency reliability for (1) the full IVWEQ, (2) the Interest in Language and Literature subscale,

and (3) the Awareness of Language in Social Interactions subscale. I used a threshold of Chronbach's Alpha ( $\alpha$ )  $> .70$  to determine internal consistency.

To test my third hypothesis – that the correlations between my scale, psychological mindedness, and the single item regarding a childhood literary activity would replicate – I conducted two bivariate correlation analyses assessing their relationship with the IVWEQ. In the pilot study, I found a positive, significant relationship between the PMS and the IVWEQ ( $r = .456, p < .01$ ) and a positive, significant correlation between the item, “I have fond memories of a parent (or parents) reading to me as a child” and the IVWEQ ( $r = .348, p < .01$ ). Bivariate correlation analyses revealing a positive  $r$  value and  $p < .05$  would suggest that these two relationships are replicated in my college-age sample.

## **Measures**

### ***The Interest in Verbal and Written Expression Questionnaire (IVWEQ)***

As mentioned above, the IVWEQ scale includes 17 items designed to assess an individual's awareness and appreciation of the role language plays in his or her life. Items were scored on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral/don't know, 4 = agree, 5 = strongly agree).

### ***Psychological Mindedness Scale (PMS)***

As mentioned in Study 1b, the PMS is a 45-item self-report questionnaire that measures the degree to which an individual reflects upon the emotions and thoughts constituting his or her inner world (Conte et al., 1990).

### ***Single Item***

As in Study 1b, an additional item probed for the experience of a literary activity in early development: “I have fond memories of a parent (or parents) reading to me as a child.”

## **Results**

### **Factor Structure**

My first hypothesis stated that the data collected from a college-age sample would fit the factor structure derived from the IVWEQ pilot study. In the pilot study, the data suggested that the IVWEQ consisted of two positively correlated, latent variables, which I have called the Interest in Language and Literature and Awareness of Language in Social Interactions. The results of tests of goodness of fit were as follows: a Model Chi-Square ( $\chi^2$ ) test yielded  $p = .00$ , with a value of  $p > .05$  indicating good model fit; the Root Mean Square Error of Approximation (RMSEA) was  $.077$ , with  $RMSEA < .08$  indicating good model fit; the Comparative Fit Index (CFI) was  $.904$ , with  $CFI > .9$  indicating good model fit; and the Standardized Root Mean Square Residual (SRMR) was  $.0612$ , with  $SRMR < .08$  indicating good model fit. Therefore, three out of four of these indices indicated good model fit. However, this ultimately represents a failure in replication, as I expected all four indices to indicate good model fit. Notably, the correlation between the latent variables was higher in the replication study ( $r = .651$ ) than it was in the pilot study ( $r = .369$ ).

### **Internal Consistency Reliability**

My second hypothesis stated that the IVWEQ and its subscales would be internally consistent. The analysis of internal consistency for the full IVWEQ taken

from a college-age sample yielded a Cronbach's Alpha ( $\alpha$ ) of .905, which exceeds the threshold of  $\alpha > 0.70$ , indicating that the full IVWEQ was internally consistent (P. Kline, 2000) (see Table 15 for item-total correlations). The analysis of internal consistency for the Interest in Language and Literature subscale yielded  $\alpha = .854$ , indicating that this subscale was internally consistent (see Table 16 for item-total correlations). Lastly, the analysis of internal consistency for the Awareness of Language in Social Interactions subscale yielded  $\alpha = .874$ , also indicating internal consistency (see Table 17 for item-total correlations). These results indicate that the internal consistency reliability analyses from the pilot study were replicated for the full IVWEQ and its two subscales.

### **Correlations**

My third hypothesis stated that the IVWEQ would be positively, significantly correlated with psychological mindedness and positive memories of being read to as a child. One hundred and sixty-six participants completed both the PMS, measuring psychological mindedness, and the IVWEQ. A bivariate correlation analysis indicated a positive, significant relationship between the PMS and the IVWEQ ( $r = .187$ ,  $p = .016$ ). Notably, this correlation was substantially lower than that obtained in the pilot study ( $r = .456$ ). Two hundred and twenty-one participants filled out both the item, "I have fond memories of my parent(s) reading to me as a child" and the IVWEQ. A bivariate correlation analysis indicated a positive, significant relationship between the IVWEQ and positive memories of being read to as a child ( $r = .169$ ,  $p = .012$ ). This correlation was also lower than that obtained in the pilot study ( $r = .348$ ). These results indicate that the validity analyses of the pilot study were replicated in terms of

significance, but the correlations were substantially lower than expected. Table 18 lists item and total scale means and standard deviations for individuals in the replication study next to these statistics for individuals in the pilot study for those who filled out both the IVWEQ and PMS. The total scale means (60.36 in replication sample, 62.77 in pilot sample) and standard deviations (10.61 in replication sample, 10.14 in pilot sample) were comparable across samples. Table 19 lists descriptive statistics for the total scores on the IVWEQ, PMS, and the childhood reading item, alongside descriptive statistics from the pilot study for comparison. The ranges of the IVWEQ (57 in replication sample, 50 in pilot sample), PMS (58 in replication sample, 61 in pilot sample), and the single item (4 in replication sample, 4 in pilot sample) were similar across studies.

### **Limitations**

#### **Sample**

The sample used in the current study was limited in that it consisted wholly of undergraduate students at a large southeastern university. As the Amazon Turk samples have been shown to possess characteristics that do not reflect the U.S. population as a whole, it is likely that this college-age sample, too, is not fully representative of the broader population due to lack of diversity in characteristics such as geographical origin, socioeconomic status, and age.

#### **Questionnaire Format**

The current study was conducted in person (as opposed to online), with participants filling out questionnaires with pens and pencils in a quiet classroom environment. The aim of providing such a milieu was to cut down on distractions

participants might encounter if completing the questionnaire online, in environments uncontrollable by the experimenter. However, problems with the questionnaire format remain; it is still possible that factors impeded participants from filling out the questionnaires as accurately as possible. For example, they might have been rushing through the questionnaires, more interested in receiving class credit than providing thoughtful responses; they might have provided dishonest responses; and they might have been distracted by environmental factors, despite the experimenter's efforts to control them.

### **Brief Discussion**

The goal of Study 2 was to determine whether the psychometric properties of the IVWEQ established in the pilot study replicated in a college-age sample. Results suggest that the two-factor solution found in the pilot study did not replicate in a college-age sample; moreover, the correlation between the two factors was notably higher in the college-age sample than in the pilot study. However, Study 2 did indicate that the full IVWEQ and its subscales show internal consistency in a new sample. As in Study 1b, the correlation between the IVWEQ and psychological mindedness was significant, but substantially lower. Similarly, the correlation between the IVWEQ and the item, "I have fond memories of a parent (or parents) reading to me as a child," was significant in Study 2, but substantially lower than the correlation in the pilot study.

## CHAPTER 4

### DISCUSSION

The results of Study 1 and Study 2, taken together, suggest that the full IVWEQ is internally consistent across samples. In other words, interest in verbal and written expression can be considered a single construct; at the very least, this project has established a scale that measures a single quality, interest in verbal and written expression, that differs among individuals. Because of its internal consistency, this scale can be correlated with other measures of individual differences to identify relationships between interest in verbal and written expression and other constructs, including those pertaining to mental health.

On the other hand, the failure to replicate the factor structure of the IVWEQ in Study 2 means its psychometrics remain uncertain. As stated above, while three out of the four indices of model fit indicate that a two-factor hypothesis adequately accounts for the factor structure of the IVWEQ, one did not. The result of this index, the Model Chi-Square ( $\chi^2$ ) test, requires some examination. While the  $\chi^2$  test has traditionally been used to assess model fit, it poses a problem: the higher the sample size, the less likelihood of a result indicating adequate fit. Researchers have pointed out that studies with sample sizes larger than 200 (the sample size in this study was 254) rarely achieve non-significant results on the  $\chi^2$  test, with non-significant results indicating poor model fit. It would thus be premature to rule out the two-factor hypothesis based on the goodness-of-fit results.

However, another result suggests skepticism of the two-factor solution is warranted. In the CFA, the correlation between latent factors ( $r = .651$ ) was

substantially higher than that in the pilot study ( $r = .348$ ). A correlation in this range raises the question of whether the latent factors, Interest in Language and Literature and Awareness of Language in Social Interactions, are actually distinct. Based on the results, it is conceivable that they are merely different reflections of the broader concept of interest in verbal and written expression. However, it might be worthwhile to pose another question: Is it possible that the relationship between these constructs changes in different samples?

When considering the two samples, an obvious difference leaps out: age. While the college-age sample presented a limited age range (18-22), the average age of the samples in the pilot study was between 30 and 39 (Goldman, 2015). It is conceivable that more life experience, and thus more exposure to language and its usage in varying environment, allows people to develop greater awareness of those aspects of verbal and written expression they truly value. If older individuals are more discerning about their language-related behaviors – for example, they know they are attentive to verbal expression in social situations, but are less likely to spend time developing knowledge of language in solitary moments – then it would make sense that administering the scale to older samples would lead to the emergence of only modestly correlated sub-constructs.

It is encouraging that the significant relationship between the IVWEQ and psychological mindedness replicated across the studies, indicating a link between consciousness of the tools of expression and a belief in the value of identifying feelings, talking about them with others, and using such capacities for positive personal growth. It is conceivable that affection for the tools of expression makes the conversion of

unarticulated feelings into words less daunting and perhaps even pleasurable. I contend that this finding goes beyond the discovery in the BAFL study that belief about the functions of language are related to psychological well-being, because the IVWEQ focuses on language itself.

The significant relationship between the IVWEQ and the item assessing for positive memories of story time with parents is suggestive of a relationship between warm emotions regarding a childhood literary activity and an appreciation of language later in life. Because the positive memories were represented by a single item, however, it is premature to draw any major conclusions about this potential relationship. It is also conceivable that the valence of a childhood memory is affected by an interest that develops after childhood, in which case adult respondents could be more easily accessing (or creating) memories consistent with their current attitudes. A longitudinal study spanning many years would be required to establish that childhood literary activities lead to interest in verbal and written expression as an adult.

It is important to address the fact that the correlations between the IVWEQ and validity items were substantially lower in Study 2. The discrepancy in correlations between the IVWEQ and psychological mindedness was especially large across studies. To determine whether the lower correlation to psychological mindedness in the student sample could be explained by a narrower range of response to the IVWEQ, it is worth comparing the ranges of total IVWEQ scores in the pilot study and the replication study. The range of response on the pilot study (50) was actually narrower than the range on the replication study (57). Moreover, the range of response to the PMS was

comparable across both studies (61 in the pilot study and 58 in the replication study; see Table 19).

Again, an explanation could lie in the age differences between members of the samples; it is possible that the relationship between interest in verbal and written expression and psychological mindedness increases as one's life progresses. College students, whose lives have consisted heavily of academic study, might consider the importance of language and verbal expression mostly in terms of academic achievement and advancement (especially while taking, or having taken, mandatory classes in English or composition). Older individuals, on the other hand, have a broader array of experiences, including ones in which they use language to either regulate emotions on their own (via an inner voice) or by discussing them with others.

### **Future Directions**

#### **Sample With a Broader Age Range**

To test the hypothesis that a limited age range might have affected this study's validity results, particularly the relatively small correlation between interest in verbal and written expression and psychological mindedness, additional research should collect samples with individuals of varying ages. Not only would such a sample clarify the effect size of the correlation between the IVWEQ and psychological mindedness, but it would allow for testing whether this correlation changes across the life span. Moreover, such a sample would allow the researcher to determine whether a two-factor solution more closely fits results gathered from individuals from a more diverse range of developmental stages. Additional data about the relationship between age, the IVWEQ, and psychological health could further understanding about whether life

experience strengthens the link between language appreciation and mental health benefits.

### **Validity**

In future experiments, the IVWEQ should be administered with a variety of other measures that would establish various types of test validity, including convergent and discriminant validity. To establish convergent validity, the IVWEQ should be administered alongside a scale that assesses a theoretically similar construct, such as intellectual curiosity. To establish discriminant validity, the IVWEQ should be administered alongside a scale that measures a theoretically distinct construct, such as the personality trait of agreeableness. One would expect significant correlations with theoretically similar constructs and nonsignificant correlations with theoretically distinct constructs. Such results would bolster confidence that the scale measures what it is designed to assess.

A key component of this research would be establishing incremental validity – that is, the IVWEQ’s correlation with mental health indices when controlling for other constructs. If the IVWEQ shows incremental validity when predicting an individual’s psychological mindedness, then we could surmise that it predicts psychological mindedness independently of other constructs with which it might be correlated. Such a finding would be important because it would establish that interest in verbal and written expression – rather than an aspect of verbal and written expression that overlaps with that of another construct – would directly predict psychological mindedness.

### **Therapy Preference**

Different types of therapies utilize different modes of intervention. For example, broadly speaking, psychodynamic therapies focus on improving an individual's awareness of their inner world, whereas certain behavioral therapies aim to directly change an individual's behavior. The former therapies place a premium on helping an individual find words for the contents of his or her mind. It is conceivable that an individual's interest in verbal and written expression could predict which type of therapy they prefer; perhaps an individual interested in language would be more suited for a therapy that capitalizes on this interest. A future possibility for the IVWEQ, therefore, would be assessing its relationship to scales designed to measure therapy preference. Furthermore, for patients in therapy that stresses the importance of articulating thoughts and feelings, it is conceivable that interest in the tools of expression could increase over time. The IVWEQ could serve as a device to assess this possibility.

### **Pleasure Versus Investment**

While the IVWEQ represents an attempt to assess an individual's interest in verbal and written expression, the nature of "interest" deserves more consideration. One aspect of interest is positive emotions experienced in relation to an entity, while another might be the degree to which one is emotionally invested in an subject. It is possible that an individual can derive pleasure from language-based behaviors but still not be especially invested because he does not regard these behaviors as meaningful. On the other hand, it is also possible that an individual is interested in language because she recognizes the value of it, but derives no particular enjoyment from language-

related activities. For example, consider the individual who becomes interested in language because linguistic mastery helps her win arguments, stymie the intrusive attempts of a therapist who aims to change her perceptions, or perform well at her job. This investment in language serves several purposes, but does not bring her pleasure. Unfortunately, the IVWEQ cannot distinguish between such individuals – its items gauge the degree to which one is interested in verbal and written expression, but not why one is interested. However, in the future a scale or scales might be developed to determine whether an individual is inclined to develop linguistically because it brings pleasure, because it brings great utility, or both.

### **Linguistic Ability as Social Display**

It is possible that a number of items in the IVWEQ not only gauge interest in verbal and written expression, but also an individual's attunement to language in the service of social positioning and judgment. For example, items such as, "I like to be able to use famous quotations from Shakespeare," "I am impressed when other people make witticisms," "People with a strong command of language make a good first impression on me," and "I think conversations with articulate people are more interesting than conversations with inarticulate people" could tap into an individual's belief that being adept linguistically enhances social standing. As a result, they aim to improve their own apparent mastery of words and judge others based on their verbal eloquence. Indeed, a belief that being verbally advanced enhances social standing could have compelled some respondents to exaggerate their interest in verbal and written expression in this study. Further research is needed to determine whether the IVWEQ is correlated with scales that measure an individual's awareness of and

investment in social status. For status-oriented individuals who score high on the IVWEQ, their interest in words might not serve them as a way to articulate their inner world, but as a way to show others how articulate they are.

### **Can Words Be Separated From Their Social Function?**

This study raises the question of whether an interest in verbal and written expression can truly be considered in isolation from an inarguable purpose of language: communication between people. In the replication study, the high correlation between factors suggests that it is possible that interest in language and literature is not distinct from interest in language in social interactions – which, by extension, suggests an interest in language is tied to an interest in socializing. Correlations between the IVWEQ and measures of gregariousness – for example, a scale measuring extraversion – could shed light on whether this is the case.

### **Correlation With Verbal Intelligence**

It would be interesting to determine the degree to which the IVWEQ is related to general verbal intelligence. One might argue that the two constructs are linked because it is natural to develop an interest in a subject in which one excels. A modest correlation between these two constructs, however, might suggest that interest in language can arise independently of one's linguistic ability. Determining correlations between the IVWEQ and scales assessing verbal intelligence – vocabulary level and reading comprehension, for example – could help answer questions regarding this relationship.

## Conclusion

The present study provided additional support for the internal consistency reliability of the IVWEQ. Its results regarding the factor structure of the IVWEQ were ambiguous: while three of four indices suggested that the scale is composed of two factors, one of the scales did not. Moreover, the relatively high correlation between the two factors raises the possibility that the purported subscales do not measure different factors after all. Further study is needed to clarify the IVWEQ's factor structure. The current study replicated the pilot study's finding of positive significant correlations between the IVWEQ and the PMS, as well as the IVWEQ and fond memories of being read to by a parent as a child. However, these correlations were substantially lower than those found in the pilot study. Therefore, additional research is also needed to clarify the sizes of these correlations. Future research should involve a sample that is diverse age-wise to determine if the age of participants has an effect on factor structure and correlations between the IVWEQ and other constructs. More generally, such research should shed additional light on the relationship between life stage and the role verbal and written expression plays in our lives. Lastly, this study raised a series of questions about the nature of interest in verbal and written expression that could be explored by conducting additional tests of correlations between the IVWEQ and indices of psychological functioning.

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**APPENDIX**

Table 1

Parallel Analysis: Eigenvalues Generated by Principal Components Analysis Versus Eigenvalues Generated Randomly

Component	Eigenvalue from principal components analysis	Eigenvalue generated randomly
1	8.18	2.33
2	2.73	2.09
3	2.45	1.93

Table 2

Component Loadings of Original 29 IVWEQ Items Following Principal Components Analysis Indicating the Extraction of 3 Factors

Item	Component 1	Component 2	Component 3
1. When I hear a word I do not understand, I look it up in the dictionary.	.560	-.121	.361
2. I have a good vocabulary and continually try to expand it.	.649	-.058	.213
3. I enjoy engaging in wordplay with friends.	.466	-.295	.229
4. I like to solve crossword puzzles.	.375	-.036	-.092
5. I get annoyed by people who use words incorrectly.	.312	.315	.686
6. I become embarrassed when I use a word incorrectly.	.358	.269	.419
7. People with a strong command of language make a good first impression on me.	.460	.544	.080
8. I enjoy good puns.	.478	.076	.045
9. I appreciate proverbs (e.g., “beggars can’t be choosers” and “the pen is mightier than the sword”) and like to use them when I communicate with other people.	.279	-.118	.224
10. I am impressed when other people make witticisms.	.478	.594	-.092
11. I prefer that people regard me as articulate and polished in the way I express my ideas.	.608	.226	-.395

Table 2 Continued

Item	Component 1	Component 2	Component 3
12. I like it when other people quote great literature to me.	.743	-.090	-.208
13. I like to listen to speakers who are verbally eloquent.	.616	.184	-.518
14. I am interested in the etymology of words (e.g., the origin and historical development of words)	.662	-.441	.182
15. I like learning about and using Latin phrases (e.g., “per se”; “sui generis”)	.722	-.367	-.137
16. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	.693	-.294	-.124
17. My favorite teachers have had the ability to use language skillfully.	.560	.290	-.506
18. I am irritated by misspellings and glaring grammatical errors in e-mails.	.281	.189	.675
19. I think conversations with articulate people are more interesting than conversations with inarticulate people.	.421	.370	.142
20. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	.528	.259	-.196

Table 2 Continued

Item	Component 1	Component 2	Component 3
21. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	.570	-.177	.092
22. I am interested in learning about how the meanings of words change over time.	.596	-.515	-.045
23. I like to be able to use famous quotations from Shakespeare (e.g., "No legacy is so rich as honesty"; "Love all, trust a few, do wrong to none") in my written or spoken communication.	.669	-.301	.049
24. I believe that the way words sound, and not just their meaning, have an impact on the messages they convey in speech or writing.	.522	.231	.194
25. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	.511	-.262	.100
26. I enjoy learning about new words added to the dictionary each year.	.651	-.290	-.158
27. People should place a higher value on the ability to write an elegantly worded paper.	.479	.480	-.133

Table 2 Continued

Item	Component 1	Component 2	Component 3
28. I am turned off when people use clichés (i.e., phrases that have been used so often that they are no longer interesting) when they write.	.316	.269	.419
29. I believe that everyone should know how to define basic parts of speech such as nouns, pronouns, verbs, prepositions, and adjectives.	.372	.287	-.168

Table 3

Factor Loadings of Original 29 IVWEQ Items Following Initial Direct Oblimin Rotation Analysis (3 Factors Extracted)

Item	Factor 1	Factor 2	Factor 3
1. When I hear a word I do not understand, I look it up in the dictionary.	.512	-.044	.373
2. I have a good vocabulary and continually try to expand it.	.509	.132	.279
3. I enjoy engaging in wordplay with friends.	.581	-.144	.161
4. I like to solve crossword puzzles.	.280	.200	-.037
5. I get annoyed by people who use words incorrectly.	.008	-.016	.818
6. I become embarrassed when I use a word incorrectly.	.057	.127	.561
7. People with a strong command of language make a good first impression on me.	-.126	.583	.384
8. I enjoy good puns.	.249	.240	.149
9. I appreciate proverbs (e.g., “beggars can’t be choosers” and “the pen is mightier than the sword”) and like to use them when I communicate with other people.	.306	-.092	.201
10. I am impressed when other people make witticisms.	-.168	.730	.251
11. I prefer that people regard me as articulate and polished in the way I express my ideas.	.200	.687	-.164

Table 3 Continued

Item	Factor 1	Factor 2	Factor 3
12. I like it when other people quote great literature to me.	.567	.398	-.106
13. I like to listen to speakers who are verbally eloquent.	.231	.729	-.293
14. I am interested in the etymology of words (e.g., the origin and historical development of words)	.831	-.137	.089
15. I like learning about and using Latin phrases (e.g., “per se”; “sui generis”)	.786	-.134	-.162
16. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	.708	.169	-.125
17. My favorite teachers have had the ability to use language skillfully.	.106	.778	-.246
18. I am irritated by misspellings and glaring grammatical errors in e-mails.	.090	-.119	.748
19. I think conversations with articulate people are more interesting than conversations with inarticulate people.	-.004	.395	.360
20. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	.133	.558	.020

Table 3 Continued

Item	Factor 1	Factor 2	Factor 3
21. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	.544	.075	.104
22. I am interested in learning about how the meanings of words change over time.	.829	-.092	-.163
23. I like to be able to use famous quotations from Shakespeare (e.g., "No legacy is so rich as honesty"; "Love all, trust a few, do wrong to none") in my written or spoken communication.	.711	.051	.027
24. I believe that the way words sound, and not just their meaning, have an impact on the messages they convey in speech or writing.	.522	.231	.194
25. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	.574	-.022	.065
26. I enjoy learning about new words added to the dictionary each year.	.673	.172	-.161
27. People should place a higher value on the ability to write an elegantly worded paper.	-.077	.668	.164

Table 3 Continued

Item	Factor 1	Factor 2	Factor 3
28. I am turned off when people use clichés (i.e., phrases that have been used so often that they are no longer interesting) when they write.	.053	.165	.389
29. I believe that everyone should know how to define basic parts of speech such as nouns, pronouns, verbs, prepositions, and adjectives.	.006	.491	.031

Table 4

Parallel Analysis: Eigenvalues Generated by Principal Components Analysis Versus Eigenvalues Generated Randomly Following Removal of Negative Emotion Items

Component	Eigenvalue from principal components analysis	Eigenvalue generated randomly
1	7.87	2.33
2	2.68	2.09

Table 5

Factor Loadings of 25 IVWEQ Items Following Removal of Negative Emotion Items  
And Direct Oblimin Rotation Analysis (2 Factors Extracted)

Item	Factor 1	Factor 2
1. When I hear a word I do not understand, I look it up in the dictionary.	.575	.023
2. I have a good vocabulary and continually try to expand it.	.546	.180
3. I enjoy engaging in wordplay with friends.	.602	-.097
4. I like to solve crossword puzzles.	.275	.184
5. People with a strong command of language make a good first impression on me.	-.099	.684
6. I enjoy good puns.	.255	.281
7. I appreciate proverbs (e.g., “beggars can’t be choosers” and “the pen is mightier than the sword”) and like to use them when I communicate with other people.	.323	-.018
8. I am impressed when other people make witticisms.	-.168	.808
9. I prefer that people regard me as articulate and polished in the way I express my ideas.	.155	.624
10. I like it when other people quote great literature to me.	.542	.356
11. I like to listen to speakers who are verbally eloquent.	.164	.657

Table 5 Continued

Item	Factor 1	Factor 2
12. I am interested in the etymology of words (e.g., the origin and historical development of words)	.868	-.157
13. I like learning about and using Latin phrases (e.g., “per se”; “sui generis”)	.772	.070
14. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	.703	.091
15. My favorite teachers have had the ability to use language skillfully.	.039	.721
16. I think conversations with articulate people are more interesting than conversations with inarticulate people.	.009	.537
17. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	.107	.580
18. If I don’t know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that “analgesic” means pain reliever because “an” = not and “algia” = pain).	.564	.023
19. I am interested in learning about how the meanings of words change over time.	.829	-.168

Table 5 Continued

Item	Factor 1	Factor 2
20. I like to be able to use famous quotations from Shakespeare (e.g., “No legacy is so rich as honesty”; “Love all, trust a few, do wrong to none”) in my written or spoken communication.	.717	.035
21. I believe that the way words sound, and not just their meaning, have an impact on the messages they convey in speech or writing.	.522	.231
22. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	.589	.023
23. I enjoy learning about new words added to the dictionary each year.	.660	.092
24. People should place a higher value on the ability to write an elegantly worded paper.	-.084	.723
25. I believe that everyone should know how to define basic parts of speech such as nouns, pronouns, verbs, prepositions, and adjectives.	-.010	.497

Table 6

Parallel Analysis: Eigenvalues Generated by Principal Components Analysis Versus Eigenvalues Generated Randomly Following Removal of Negative Emotion Items, Items With Small Loadings, and Items That Loaded Heavily on Both Factors

Component	Eigenvalue from principal components analysis	Eigenvalue generated randomly
1	6.18	2.33
2	2.30	2.09

Table 7

Factor Loadings of Each IVWEQ Item Following the Second Direct Oblimin Rotation  
(2 Factors Extracted)

Item	Loading on Factor 1 (Interest in Language and Literature)	Loading on Factor 2 (Awareness of Language in Social Interactions)
1. I am interested in the etymology of words (e.g., the origin and historical development of words)	.875	-.166
2. I am interested in learning about how the meanings of words change over time.	.838	-.147
3. I like learning about and using Latin phrases (e.g., “per se”; “sui generis”)	.781	.076
4. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	.736	.095
5. I like to be able to use famous quotations from Shakespeare (e.g., “No legacy is so rich as honesty”; “Love all, trust a few, do wrong to none”) in my written or spoken communication.	.692	.045
6. I enjoy learning about new words added to the dictionary each year.	.671	.102
7. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	.601	-.034
8. When I hear a word I do not understand, I look it up in the dictionary.	.583	-.028

Table 7 Continued

Item	Loading on Factor 1 (Interest in Language and Literature)	Loading on Factor 2 (Awareness of Language in Social Interactions)
9. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	.558	.118
10. I have a good vocabulary and continually try to expand it.	.535	.190
11. I am impressed when other people make witticisms.	-.162	.808
12. My favorite teachers have had the ability to use language skillfully.	.058	.759
13. I like to listen to speakers who are verbally eloquent.	.166	.692
14. I prefer that people regard me as articulate and polished in the way that I express my ideas.	.169	.653
15. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	.113	.634
16. People with a strong command of language make a good first impression on me.	-.052	.610
17. I think conversations with articulate people are more interesting than conversations with inarticulate people.	-.024	.553
% of Variance	36.34	13.54
Eigenvalue	6.18	2.30
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.79
Bartlett's Test of Sphericity		P < .001

Note: Items Renumbered.

Table 8

## Item-Total Correlations for the 17 Interest in Verbal and Written Expression Items, Pilot Study

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
1. I am interested in the etymology of words (e.g., the origin and historical development of words)	.631	.877
2. I am interested in learning about how the meanings of words change over time.	.602	.878
3. I like learning about and using Latin phrases (e.g., "per se"; "sui generis")	.711	.874
4. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	.677	.875
5. I like to be able to use famous quotations from Shakespeare (e.g., "No legacy is so rich as honesty"; "Love all, trust a few, do wrong to none") in my written or spoken communication.	.608	.878
6. I enjoy learning about new words added to the dictionary each year.	.622	.878
7. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	.460	.884
8. When I hear a word I do not understand, I look it up in the dictionary.	.463	.884

Table 8 Continued

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
9. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	.530	.881
10. I have a good vocabulary and continually try to expand it.	.562	.880
11. I am impressed when other people make witticisms.	.356	.887
12. My favorite teachers have had the ability to use language skillfully.	.508	.882
13. I like to listen to speakers who are verbally eloquent.	.558	.880
14. I prefer that people regard me as articulate and polished in the way that I express my ideas.	.528	.881
15. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	.486	.883
16. People with a strong command of language make a good first impression on me.	.328	.887
17. I think conversations with articulate people are more interesting than conversations with inarticulate people.	.314	.888

Table 9

Item-Total Correlations for the Interest in Language and Literature Items, Pilot Study		
Item	Item-Total Correlation	Cronbach's Alpha if Deleted
1. I am interested in the etymology of words (e.g., the origin and historical development of words)	.743	.866
2. I am interested in learning about how the meanings of words change over time.	.686	.871
3. I like learning about and using Latin phrases (e.g., "per se"; "sui generis")	.734	.867
4. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	.701	.869
5. I like to be able to use famous quotations from Shakespeare (e.g., "No legacy is so rich as honesty"; "Love all, trust a few, do wrong to none") in my written or spoken communication.	.639	.874
6. I enjoy learning about new words added to the dictionary each year.	.634	.874
7. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	.510	.883
8. When I hear a word I do not understand, I look it up in the dictionary.	.479	.884

Table 9 Continued

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
9. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	.530	.881
10. I have a good vocabulary and continually try to expand it.	.543	.881

Table 10

## Item-Total Correlations for the Awareness of Language in Social Interactions, Pilot Study

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
1. I am impressed when other people make witticisms.	.356	.887
2. My favorite teachers have had the ability to use language skillfully.	.508	.882
3. I like to listen to speakers who are verbally eloquent.	.558	.880
4. I prefer that people regard me as articulate and polished in the way that I express my ideas.	.528	.881
5. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	.486	.883
6. People with a strong command of language make a good first impression on me.	.328	.887
7. I think conversations with articulate people are more interesting than conversations with inarticulate people.	.314	.888

Table 11

Means and standard deviations for the 17 Interest in Verbal and Written Expression Items, Study 1b

Item	Mean	Standard Deviation
1. I am interested in the etymology of words (e.g., the origin and historical development of words)	3.54	1.083
2. I am interested in learning about how the meanings of words change over time.	3.77	.995
3. I like learning about and using Latin phrases (e.g., “per se”; “sui generis”)	3.13	1.201
4. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	3.12	1.270
5. I like to be able to use famous quotations from Shakespeare (e.g., “No legacy is so rich as honesty”; “Love all, trust a few, do wrong to none”) in my written or spoken communication.	3.07	1.100
6. I enjoy learning about new words added to the dictionary each year.	3.37	1.065
7. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	3.17	1.245
8. When I hear a word I do not understand, I look it up in the dictionary.	3.82	.881

Table 11 Continued

Item	Mean	Standard Deviation
9. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	3.76	1.084
10. I have a good vocabulary and continually try to expand it.	3.97	.854
11. I am impressed when other people make witticisms.	4.00	.807
12. My favorite teachers have had the ability to use language skillfully.	3.82	1.034
13. I like to listen to speakers who are verbally eloquent.	4.18	.842
14. I prefer that people regard me as articulate and polished in the way that I express my ideas.	4.00	.924
15. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	4.03	.800
16. People with a strong command of language make a good first impression on me.	4.18	.860
17. I think conversations with articulate people are more interesting than conversations with inarticulate people.	3.88	1.004
Total IVWEQ	62.7727	10.1356

Table 12

Descriptive Statistics for the IVWEQ, PMS, and Single Item,\* Pilot Study

Scale	Range	Minimum	Maximum	Mean	Standard Deviation	Variance
IVWEQ	50	35	85	62.773	10.136	102.719
PMS	61	102	163	128.893	14.384	206.907
Single Item*	4	1	5	3.47	1.309	1.172

\*I have fond memories of a parent (or parents) reading to me as a child.

Table 13

## Item-Total Correlations for the 17 Interest in Verbal and Written Expression Items, Replication Study

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
1. I am interested in the etymology of words (e.g., the origin and historical development of words)	.684	.895
2. I am interested in learning about how the meanings of words change over time.	.634	.897
3. I like learning about and using Latin phrases (e.g., "per se"; "sui generis")	.563	.900
4. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	.496	.902
5. I like to be able to use famous quotations from Shakespeare (e.g., "No legacy is so rich as honesty"; "Love all, trust a few, do wrong to none") in my written or spoken communication.	.564	.900
6. I enjoy learning about new words added to the dictionary each year.	.610	.898
7. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	.462	.903
8. When I hear a word I do not understand, I look it up in the dictionary.	.451	.903

Table 13 Continued

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
9. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	.520	.901
10. I have a good vocabulary and continually try to expand it.	.565	.900
11. I am impressed when other people make witticisms.	.596	.898
12. My favorite teachers have had the ability to use language skillfully.	.586	.899
13. I like to listen to speakers who are verbally eloquent.	.679	.896
14. I prefer that people regard me as articulate and polished in the way that I express my ideas.	.634	.898
15. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	.687	.896
16. People with a strong command of language make a good first impression on me.	.651	.898
17. I think conversations with articulate people are more interesting than conversations with inarticulate people.	.436	.903

Table 14

## Item-Total Correlations for the Interest in Language and Literature Items, Replication Study

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
1. I am interested in the etymology of words (e.g., the origin and historical development of words)	.709	.826
2. I am interested in learning about how the meanings of words change over time.	.650	.832
3. I like learning about and using Latin phrases (e.g., "per se"; "sui generis")	.611	.835
4. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	.500	.845
5. I like to be able to use famous quotations from Shakespeare (e.g., "No legacy is so rich as honesty"; "Love all, trust a few, do wrong to none") in my written or spoken communication.	.569	.839
6. I enjoy learning about new words added to the dictionary each year.	.653	.832
7. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	.461	.849
8. When I hear a word I do not understand, I look it up in the dictionary.	.436	.849

Table 14 Continued

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
9. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	.506	.845
10. I have a good vocabulary and continually try to expand it.	.491	.846

Table 15

Item-Total Correlations for the Awareness of Language in Social Interactions,  
Replication Study

Item	Item-Total Correlation	Cronbach's Alpha if Deleted
1. I am impressed when other people make witticisms.	.592	.865
2. My favorite teachers have had the ability to use language skillfully.	.679	.853
3. I like to listen to speakers who are verbally eloquent.	.767	.842
4. I prefer that people regard me as articulate and polished in the way that I express my ideas.	.663	.855
5. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	.701	.851
6. People with a strong command of language make a good first impression on me.	.759	.845
7. I think conversations with articulate people are more interesting than conversations with inarticulate people.	.481	.883

Table 16

Means and Standard Deviations for the 17 Interest in Verbal and Written Expression Items, Replication Study and Pilot Study, for Participants Who Filled Out Both the IVWEQ and PMS

Item	Mean, Replication Study	Standard Deviation, Replication Study	Mean, Pilot Study	Standard Deviation, Pilot Study
1. I am interested in the etymology of words (e.g., the origin and historical development of words)	3.21	1.111	3.54	1.083
2. I am interested in learning about how the meanings of words change over time.	3.45	1.047	3.77	.995
3. I like learning about and using Latin phrases (e.g., “per se”; “sui generis”)	2.78	1.117	3.13	1.201
4. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)	2.72	1.190	3.12	1.270
5. I like to be able to use famous quotations from Shakespeare (e.g., “No legacy is so rich as honesty”; “Love all, trust a few, do wrong to none”) in my written or spoken communication.	2.86	1.206	3.07	1.100
6. I enjoy learning about new words added to the dictionary each year.	3.04	1.084	3.37	1.065
7. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.	3.61	1.184	3.17	1.245
8. When I hear a word I do not understand, I look it up in the dictionary.	3.99	.891	3.82	.881

Table 16 Continued

Item	Mean, Replication Study	Standard Deviation, Replication Study	Mean, Pilot Study	Standard Deviation, Pilot Study
9. If I don't know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that "analgesic" means pain reliever because "an" = not and "algia" = pain).	3.36	1.139	3.76	1.084
10. I have a good vocabulary and continually try to expand it.	3.75	.932	3.97	.854
11. I am impressed when other people make witticisms.	3.62	1.000	4.00	.807
12. My favorite teachers have had the ability to use language skillfully.	4.04	.837	3.82	1.034
13. I like to listen to speakers who are verbally eloquent.	4.13	.821	4.18	.842
14. I prefer that people regard me as articulate and polished in the way that I express my ideas.	3.89	.881	4.00	.924
15. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.	3.95	.866	4.03	.800
16. People with a strong command of language make a good first impression on me.	4.12	.764	4.18	.860
17. I think conversations with articulate people are more interesting than conversations with inarticulate people.	3.82	1.040	3.88	1.004
Total IVWEQ	60.3635	10.6133	62.7727	10.1356

Table 17

Descriptive statistics for the IVWEQ, PMS, and single item,\* replication study and pilot study

Scale	Range	Minimum	Maximum	Mean	Standard Deviation	Variance
IVWEQ, Replication	57	23	80	60.364	10.613	112.643
IVWEQ, Pilot	50	35	85	62.773	10.136	102.719
PMS, Replication	58	101	159	131.012	11.400	129.970
PMS, Pilot	61	102	163	128.893	14.384	206.907
Single Item*, Replication	4	1	5	3.54	1.238	1.532
Single Item*, Pilot	4	1	5	3.47	1.309	1.172

\*I have fond memories of a parent (or parents) reading to me as a child.

### Original 29 Items Used in Pilot Study

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1. When I hear a word I do not understand, I look it up in the dictionary.
2. I have a good vocabulary and continually try to expand it.
3. I enjoy engaging in wordplay with friends.
4. I like to solve crossword puzzles.
5. I get annoyed by people who use words incorrectly.
6. I become embarrassed when I use a word incorrectly.
7. People with a strong command of language make a good first impression on me.
8. I enjoy good puns.
9. I appreciate proverbs (e.g., “beggars can’t be choosers” and “the pen is mightier than the sword”) and like to use them when I communicate with other people.
10. I am impressed when other people make witticisms.
11. I prefer that people regard me as articulate and polished in the way I express my ideas.
12. I like it when other people quote great literature to me.
13. I like to listen to speakers who are verbally eloquent.
14. I am interested in the etymology of words (e.g., the origin and historical development of words)

15. I like learning about and using Latin phrases (e.g., “per se”; “sui generis”)
  16. I would like to own (or do own) my own copy of the unabridged OED (Oxford English Dictionary)
  17. My favorite teachers have had the ability to use language skillfully.
  18. I am irritated by misspellings and glaring grammatical errors in e-mails.
  19. I think that conversations with articulate people are more interesting than conversations with inarticulate people.
  20. I appreciate it when, in speech or in writing, someone uses a word in a new, unexpected, but appropriate manner.
  21. If I don’t know a word, I often figure it out by analyzing its prefixes, roots, and suffixes (e.g., I might determine that “analgesic” means pain reliever because “an” = not and “algia” = pain).
  22. I am interested in learning about how the meanings of words change over time.
  23. I like to be able to use famous quotations from Shakespeare (e.g., “No legacy is so rich as honesty”; “Love all, trust a few, do wrong to none”) in my written or spoken communication.
  24. I believe that the way words sound, and not just their meaning, have an impact on the messages they convey in speech or writing.
  25. I memorize meaningful reading passages, song lyrics, or lines of dialog from film and theater.
  26. I enjoy learning about new words added to the dictionary each year.
  27. People should place a higher value on the ability to write an elegantly worded paper.
  28. I am turned off when people use clichés (i.e., phrases that have been used so often that they are no longer interesting) when they write.
  29. I believe that everyone should know how to define basic parts of speech such as nouns, pronouns, verbs, prepositions, and adjectives.
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### The Psychological Mindedness Scale

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1. I am willing to change old habits to try a new way of doing things.
2. I would be willing to talk about my personal problems if I thought it might help me or a member of my family.
3. I am always curious about the reasons people behave as they do.
4. I think that most people who are mentally ill have something physically wrong with their brain. (R)
5. When I have a problem, if I talk about it with a friend, I feel a lot better.
6. There are certain problems which I could not discuss outside my immediate family. (R)
7. I often find myself thinking about what made me act in a certain way.
8. Often I don't know what I'm feeling. (R)
9. Emotional problems can sometimes make you physically sick.
10. If a friend gave me advice about how to do something better, I'd try it out.
11. When you have problems, talking about them with other people just makes them worse. (R)
12. Usually, if I feel an emotion, I can identify it.
13. I am annoyed by someone, whether he is a doctor or not, who wants to know about my personal problems. (R)
14. I find that once I develop a habit, it is hard to change, even if I know there is another way of doing things that might be better. (R)

15. I think that people who are mentally ill often have problems which began in their childhood.
16. Letting off steam by talking to someone about your problems often makes you feel a lot better.
17. People sometimes say that I act as if I'm having a certain emotion (anger, for example) when I am unaware of it. (R)
18. I get annoyed when people give me advice about changing the way I do things. (R)
19. It would not be difficult for me to talk about personal problems with people such as doctors and clergymen.
20. If a good friend of mine suddenly started to insult me, my first reaction might be to try to understand why he was so angry.
21. Often, even though I know that I'm having an emotion, I don't know what it is. (R)
22. I think that when a person has crazy thoughts, it is often because he is very anxious and upset.
23. I've never found that talking to other people about my worries helps much. (R)
24. I like to do things the way I've done them in the past. I don't like to try to change my behavior much. (R)
25. There are some things in my life that I would not discuss with anyone. (R)
26. Understanding the reasons you have deep down for acting in certain ways is important.
27. At work, if someone suggested a different way of doing a job that might be better, I'd give it a try.
28. I've found that when I talk about my problems to someone else, I come up with ways to solve them that I hadn't thought of before.
29. I am sensitive to the changes in my own feelings.

30. When I learn a new way of doing something, I like to try it out to see if it would work better than what I had been doing before.
31. It is important to be open and honest when you talk about your troubles with someone you trust.
32. I really enjoy trying to figure other people out.
33. I think that most people with mental problems have probably received some kind of injury to their head. (R)
34. I like to try new things, even if it involves taking risks.
35. Talking about your worries to another person helps you to understand problems better.
36. I'm usually in touch with my feelings.
37. It would be very difficult for me to discuss upsetting or embarrassing aspects of my personal life with people, even if I trust them. (R)
38. If I suddenly lost my temper with someone, without knowing exactly why, my first impulse would be to forget about it. (R)
39. I think that what a person's environment (family, etc.) is like has little to do with whether he develops mental problems. (R)
40. I don't like doing things if there is a chance that they won't work out. (R)
41. When you have troubles, talking about them to someone else just makes you more confused. (R)
42. I frequently don't want to delve too deeply into what I'm feeling. (R)
43. I think that no matter how hard you try, you'll never really understand what makes people tick. (R)
44. I think that what goes on deep down in a person's mind is important in determining whether he will have a mental illness. (R)

45. Fear of embarrassment or failure doesn't stop me from trying something new.  
(R)

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(R) indicates reverse coding

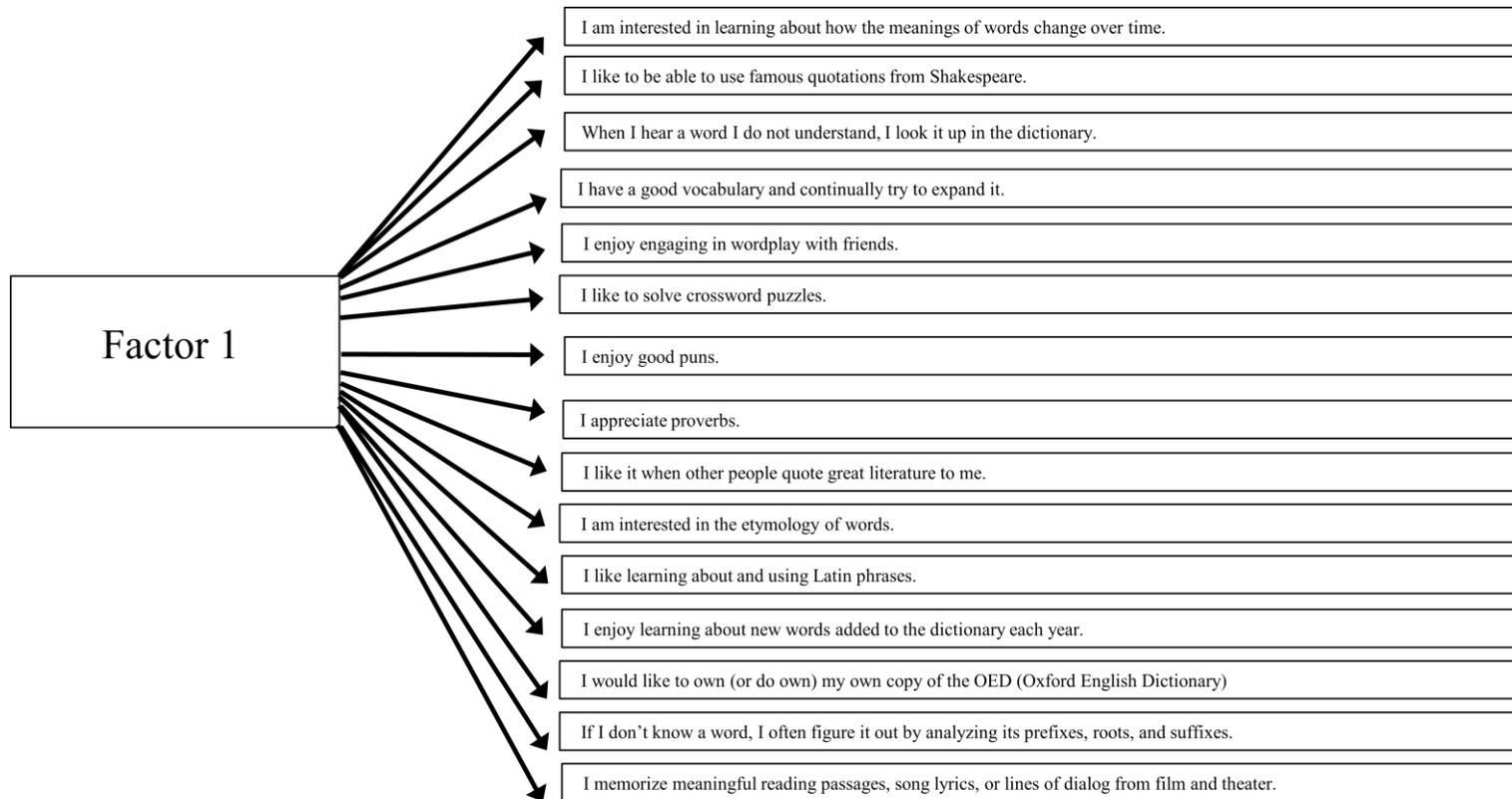


Figure 1

A visual depiction of the 3-factor model following initial Direct Oblimin rotation analysis of original 29 IVWEQ items

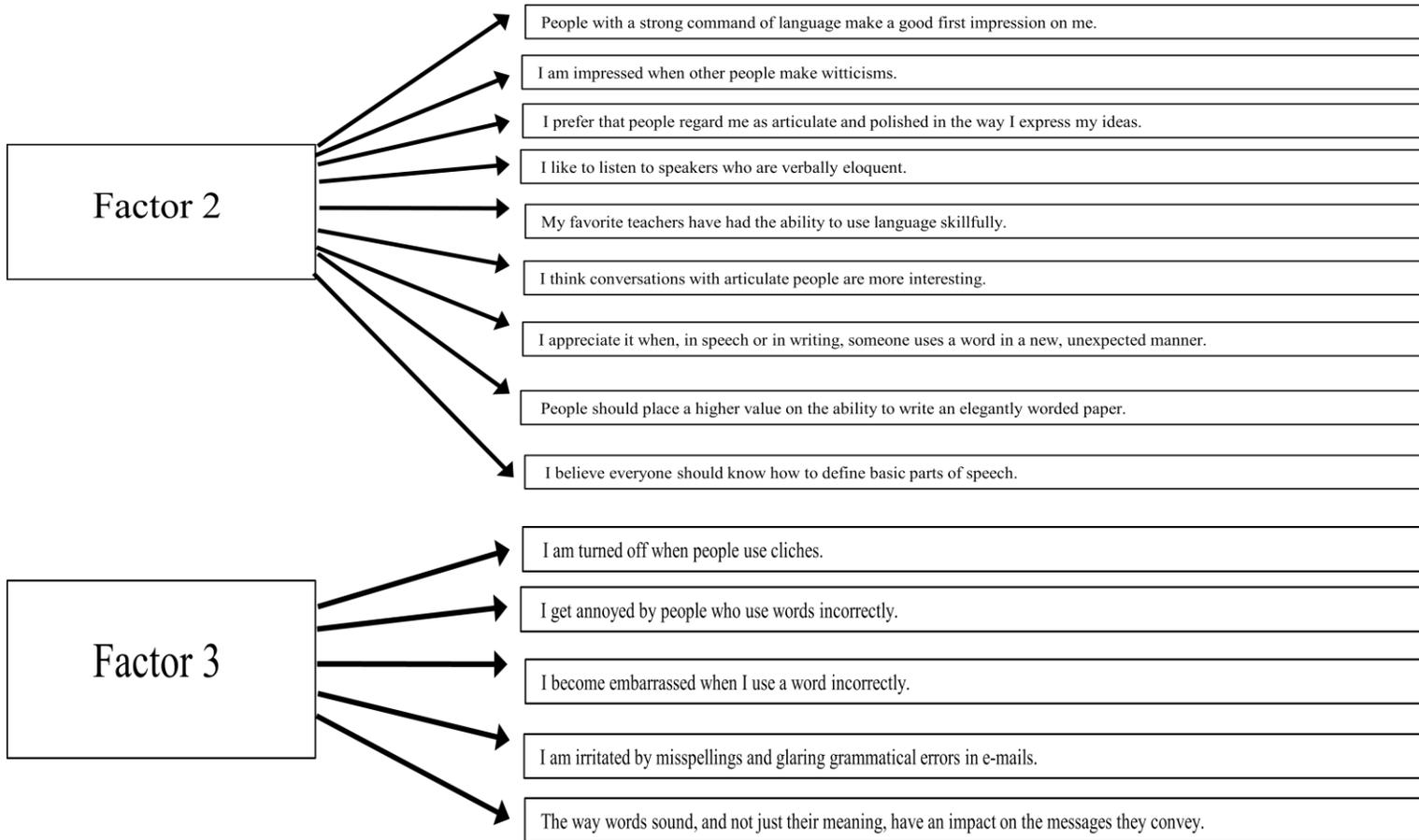


Figure 1 Continued

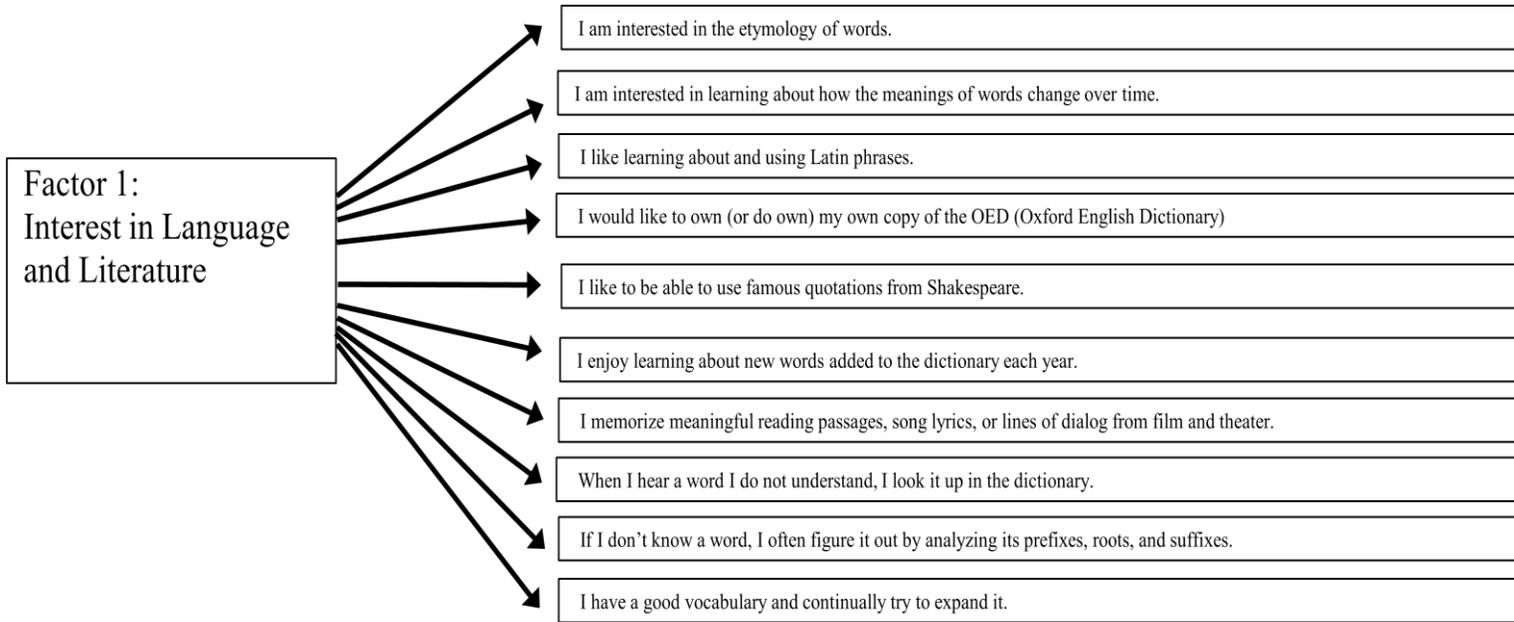


Figure 2

A visual depiction of the 2-factor model following Direct Oblimin rotation analysis of 17 IVWEQ items

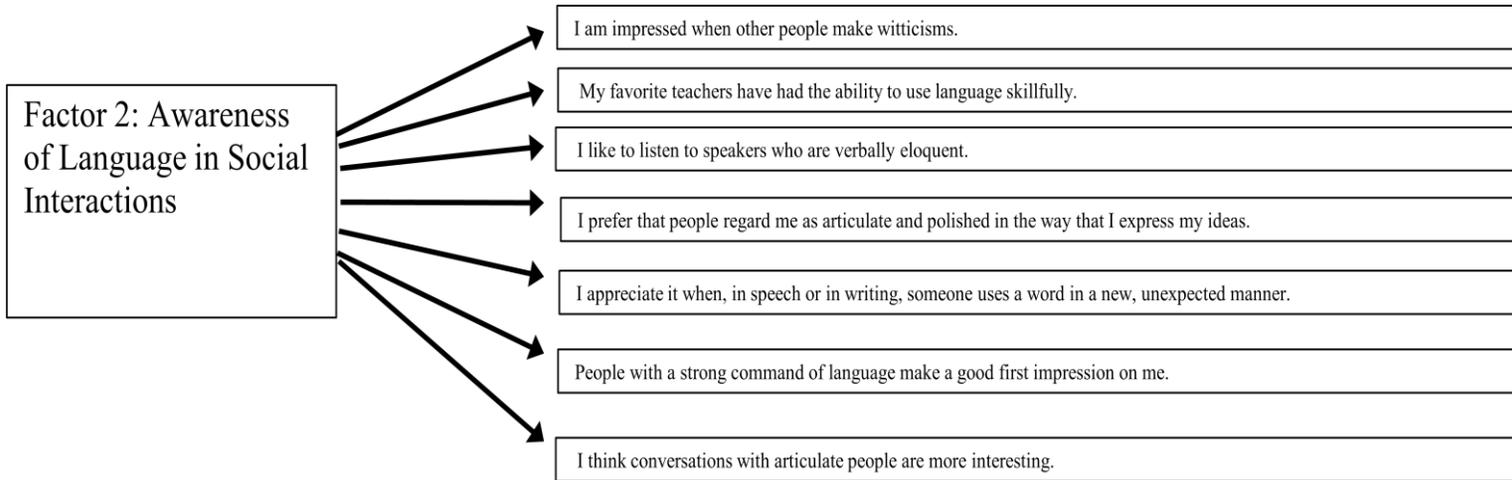


Figure 2 Continued

## VITA

Jared Goldman was born in Boston, MA, to Barry and Constance Goldman. He was raised with his younger brother, Ross, in the Boston suburbs. He attended college at Amherst, where he earned a Bachelor of Arts in English in 1997. While working in online news media in New York City, he went on to earn a Master of Fine Arts in Creative Writing (Fiction) from Sarah Lawrence College in 2003. For a number of years, he continued working as a news editor, producer, and writer in New York City. After his decision to pursue a career in psychology, he earned a Master of Arts in Psychology at the City College of New York in 2012, before enrolling in the graduate program in Clinical Psychology at the The University of Tennessee, Knoxville. He earned his Doctor of Philosophy Degree in May 2019.