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Development and Validation of a Volunteer Adult Literacy Tutor Perception Feedback Scale

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Development and Validation of a Volunteer Adult Literacy Tutor Perception Feedback Scale

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Abstract

This exploratory study developed and validated a Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS). The VALTPFS is a self-report questionnaire that measures the perceptions of one-on-one adult literacy tutors about their values, knowledge sharing, and satisfaction. This instrument is designed to assess the perceptions of adults who volunteer to provide literacy instruction to tutees who are U.S. born native English language speaking adults. The theoretical framework used to inform the development of the VALTPFS is the community of practice (CoP). The CoP framework was used to identify subscales from instruments with established psychometric credentials to operationalize the VALTPFS. As such, the VALTPFS should facilitate the generation of actionable information to inform the management of a volunteer tutor program and eventually establish a volunteer tutor CoP. The development and validation of the VALTPFS instrument involved pretesting by 15 adult literacy practitioners, item analysis conducted by seven subject matter experts, a pilot study (251 responses), and a full study (228 responses). This process resulted in a 14-item questionnaire consisting of three subscales – values, knowledge sharing, and satisfaction. The subscale alphas ranged from 0.88 to 0.94, thus establishing reliability evidence. Exploratory factor analysis identified three factors accounting for 74 percent of the variance. The factor rotations resulted in a simple structure with all items loading on only one of three factors, thus providing evidence for construct validity based upon internal structure. Additional evidence for construct validity was obtained from relationships to other variables. The resulting questionnaire provides the empirical foundation upon which future studies can build upon to furnish more evidence for the questionnaire's construct validity.

Keywords: exploratory factor analysis (EFA), volunteer adult literacy tutor, community of practice (CoP), instrument, development and validation, scale, volunteer recruitment, volunteer development, volunteer retention, volunteer tutor, adult literacy

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Chapter I - Introduction

There are approximately 43 million adults with low-literacy skills (reading at or below a third-grade level) in the U.S. (Gurría, 2013; Mamedova & Pawlowsk, 2019). A basic definition of literacy is the ability to read, understand, and use written text in a variety of life situations (Schleicher, 2008). In 2019, the Program for the International Assessment of Adult Competencies (PIAAC) released a report detailing the demographic breakout of the English language low-literacy population in the United States (Mamedova & Pawlowsk, 2019). White U.S.-born adults represent approximately 33 percent of the U.S. low-literacy population. Black U.S.-born adults represent another 20 percent. U.S.-born Hispanics and those classified as "other" represent about ten and three percent, respectively. Finally, adults born outside the U.S. represent about 34 percent of the U.S. low-literacy population. Adults with low literacy skills are a significant proportion of the major demographic groups in the United States. This means the consequences of low literacy impact all major demographic groups.

Low literacy is intrinsically linked to poor health, low educational attainment, joblessness, poor housing and poverty (Matsuura, 2005). These statistics are even more troubling when you consider that almost 65 percent of all jobs require training or education beyond high school (Carnevale et al., 2013). Equally important, low literacy costs the United States more than $225 billion each year in lost tax revenues due to unemployment and workforce non-productivity (Spangenberg, 2015). Yet, despite the consequences of low literacy, the nation has yet to harness the resources needed to adequately address the education and training needs of the 43 million adults with low-literacy skills.

The largest group of service providers are federal and state funded adult literacy programs. These programs reach approximately 1.3 million adults annually (Keenan et al., 2020). At best, local governments, community-based organizations, and volunteer literacy organizations provide literacy programs to an additional 500,000 adults each year (Bellso, 2018; Guy, 2005). This means that millions of adults in the United States are potentially waitlisted every year due to the shortfall in the availability of paid adult literacy instructors or volunteer tutors (Bellso, 2018; McLendon, 2011; Tighe, 2014). In addition to the funding and service shortfalls, low literacy service providers are also challenged to address the shortage of qualified adult literacy tutors.

Researcher Interest

For the past four years I have had the opportunity to work with a community-based literacy organization (CBLO) located in a major metropolitan city in Virginia. This CBLO provides educational opportunities to adults with low-level reading and communication skills, i.e., reading and writing at the eighth-grade level or below. My experience with the CBLO started with my service as an adult literacy tutor.

I initially served as a volunteer one-on-one adult literacy tutor for a female student in her mid-fifties. In the months that we worked together, she shared with me her unsuccessful struggles to earn a high school credential. The more she revealed about her life, the more I respected her resolve and determination. Additionally, my volunteer experience instilled in me an appreciation for the importance of tutor development and the need to collaborate with other tutors to improve my practice. My tutoring service ended when my student accepted a new job. However, the experience was so rewarding I approached the organization’s program manager to

explore ways to focus the research requirements associated with my PhD courses on the CBLO's one-on-one tutoring program. The results of my work would provide a service to the CBLO by obtaining valuable information to inform programming through data collection and evaluation methods.

In the following years, I developed and implemented a tutor survey, designed and implemented a test based upon the CBLO's tutor training curriculum, and completed a mini-case study to understand the perspectives of three senior tutors (i.e., more than 10-years' experience) about the supports they needed to be effective tutors. The insights gained from the interviews of the three senior tutors became the primary motivators for this research project.

First, the tutors instilled in me an appreciation for the strengths and a key weakness of a volunteer tutor program based upon the human resource management (HRM) approach to volunteer management. The utilization of a HRM approach for volunteer management is an approach used by many nonprofit organizations in the United States (Bartram et al., 2017; Cunningham, 1999; Cuskelly et al., 2006; Studer & Schnurbein, 2013). I considered the strengths of the HRM-based framework were the CBLO's use of tutor position descriptions, education and training opportunities, tutor recognition programs, and tutor activity reports. However, I felt the key weaknesses of the HRM framework to be its inability to facilitate the cultivation of an environment where tutors work collectively to develop and self-manage their practice. This semi-autonomy would enable volunteer tutor program managers to improve student outcomes, improve the volunteer tutor experience, increase the number of tutors, improve the quality of tutoring services, and minimize program oversight requirements. A concept that has the potential to facilitate the achievement of these program attributes is called the community of practice. A CoP is defined as a group of people who are engaged in a practice, are passionate about it, learn

from their interactions, and apply that learning to improve the practice on an ongoing basis (Andrew et al., 2008; Wenger, 2011).

I wanted to find a way to enable CBLOs to facilitate the cultivation of an environment where tutors work collectively to self-manage their practice. My initial research led me to investigate the utilization of a community of practice (CoP) framework to develop a survey questionnaire, utilizing elements from instruments with established psychometric credentials, that could provide actionable information to inform the management of a CBLO's volunteer tutor program and eventually establish a volunteer tutor CoP.

Statement of the Problem

One means to serve the 41 million adults not enrolled in literacy programs (Bellso, 2018; Keenan et al., 2020) is to have adult literacy service providers enhance the program capacity and effectiveness of their volunteer tutor programs. One source to obtain feedback on needed program improvements is the adult literacy tutors themselves. A review of the current literature on volunteer tutors indicates no reliable or valid instrument exists to measure adult literacy tutors' perceptions about their motivations to volunteer, knowledge sharing, and satisfaction. Consequently, volunteer program managers struggle to gain insights about how well their tutor programs are recruiting, developing, and retaining their volunteer tutors. Most of the existing instruments used to assess the attitudes and perceptions of volunteers are broadly applicable to any organization that uses volunteers such as the Volunteer Satisfaction Index (Galindo-Kuhn & Guzley, 2002) and the Volunteer Functions Inventory (Clary et al., 1998). None of the instruments are specifically designed for the adults who volunteer as one-on-one adult literacy tutors. This is problematic since volunteer tutors constitute up to 80% of the instructor staff for

CBLOs (Tamassia et al., 2007). Therefore, program managers need a reliable and valid means to obtain specific and actionable feedback from their tutors about the quality of their tutor management and support programs.

Rationale for the Study

The purpose of this exploratory study is to develop and validate a Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS). The VALTPFS is a self-report questionnaire that measures the perceptions of one-on-one adult literacy tutors about their values, knowledge sharing, and satisfaction. In particular, the VALTPF scale inquires about the values that motivate tutors to volunteer, their level of knowledge sharing, and their level of satisfaction with the support provided by their host organization. This instrument is designed to assess the perceptions of adults who volunteer to provide literacy instruction to tutees who are U.S. born native English language speaking adults (age 18+).[1]

The findings from a systematic review of the literature, discussed in detail in chapter two, revealed very little research has been focused on volunteer adult literacy tutors in the past 20 years. This lack of research leaves unexamined several aspects of volunteer tutor management that could improve practice and expand the body of research. For example, no standardized survey questionnaires exist that specifically assess the attitudes or perceptions of volunteer adult literacy tutors. Therefore, the development and validation of this instrument will provide the empirical foundation upon which future research can draw to enable the systematic assessment of volunteer tutors. This assessment data will enable tutor program managers and executive

[1] The English Learner (EL) population is very diverse, ranging from students with very little literacy skills in their native language to students with a Ph.D. (Belzer, 2013). The diversity of the EL population is one of the reasons why this group of adult students was not the focus of this study.

directors to improve their capabilities to recruit, train, and retain their volunteer adult literacy tutors.

With respect to expanding the body of research, there is no extant research that investigates the feasibility and utility of using the community of practice (CoP) concept as a theoretical framework to provide insights about the attitudes and perceptions of volunteer adult literacy tutors (Consalvo et al., 2015; Koliba & Gajda, 2009; Merriam, 2017; Sligo et al., 2019). Consequently, this study is intended to contribute to the body of research on volunteer adult literacy tutors in the areas of questionnaire development and the use of CoP as a theoretical framework. This framework will be primarily used for the design of the questionnaire. However, inherent in the questionnaire's design is an implied framework for the management of volunteer adult literacy tutors.

Significance of the Study

In the United States, adult literacy service providers have depended on volunteer tutors for the past 63 years (Belzer, 2006b; Webb, 2018). The term volunteer tutor is defined as an individual who provides adult literacy services on a non-paid basis to adults who want to improve their literacy skills (Ziegler et al., 2009). As compared to paid instructors, instruction in adult basic literacy programs serving adults with low literacy skills is provided mostly by volunteers (Lesgold & Welch-Ross, 2012; Webb, 2018). One study determined approximately 60% of adult literacy instructors serving in government and community-based literacy programs in the U. S. are volunteers (Perry & Luk, 2017). When you consider only community-based literacy programs, volunteers constitute up to 80% of the staff (Tamassia et al., 2007).

Consequently, the adult literacy community's dependence on volunteers has the potential to spur innovation with respect to its volunteer management.

Due to the large number of adults with low-literacy skills (Mamedova & Pawlowsk, 2019), the consequences of low literacy (Matsuura, 2005), the shortage of resources (Keenan et al., 2020), and the dependence on volunteer tutors (Belzer, 2006a), the adult literacy community may need to change to better meet the needs of the adult population with low literacy skills. For example, the adult literacy community could consider innovative ways of conceptualizing and framing the challenges associated with the recruitment, development, and retention of adult literacy tutors.

Despite the importance of volunteer tutors to adult literacy programs, there has been a limited amount of research focused on volunteer tutor management. In particular, few studies have investigated volunteer-based tutoring programs that provide one-on-one instruction to improve tutees' literacy skills (Belzer, 2006c). The limited number of published studies pertain to tutors who were either reading experts or university based researchers (Belzer, 2006c). This lack of research is also reflected in the research literature on adult literacy program evaluation.

It is challenging to find published evaluation studies due to the many characteristics associated with adult literacy programs, e.g., high student enrollment and disenrollment rates, lack of student regular attendance (Shi & Tsang, 2008). Additionally, most published adult literacy evaluation studies focus on overall adult literacy program evaluation rather than specifically focusing on adult literacy tutoring programs. For example, Shi and Tsang (2008) conducted a critical review of methodological issues in the evaluation of adult literacy education programs. Their systematic review of the published literature from 1994 to 2007 only identified

18 evaluation studies. These studies were published between 1994 and 2004 and the researchers were unable to identify any studies published between 2004 and 2007. The studies addressed adult basic education, family literacy, and workplace literacy programs at the national-, state-, and school-district levels – representing different purposes, types, and research questions (Shi & Tsang, 2008). None of the studies specifically evaluated an adult literacy tutor program. This gap in evaluation research is a critical shortcoming because volunteer tutor program managers are potentially unaware of information that could help to improve their practice (Padak & Padak, 1991). This research will develop a survey questionnaire that has the potential to generate feedback that can be used to enhance program effectiveness and capacity. These new insights could contribute to the body of knowledge in adult literacy program evaluation research.

Practical Significance of a Program Evaluation Tool

The evaluation of an adult literacy tutor program, and utilization of the findings, is one of the key means to enhance an organization's ability to recruit, develop, and retain volunteer adult literacy tutors (Comings et al., 2006). Several researchers have argued that improvements to the management of volunteer adult literacy tutor programs that result in enhanced program capacity and effectiveness are imperative if the U.S. intends to significantly reduce the number of adults with low literacy skills (Ilsley, 1985; Sandlin & St. Clair, 2005; Witherell, 1992). Therefore, executive directors and volunteer program managers should have a clear understanding of the scope and nature of the supports provided to their one-on-one volunteer tutors. This understanding can be facilitated by conducting research on the development and validation of a survey questionnaire specifically designed to elicit feedback from volunteer adult literacy tutors.

The findings from this research will establish the empirical foundation that will eventually result in the validation and confirmation of a version of the VALTPFS that can generate actionable information to inform the recruitment, development, and retention of volunteer adult literacy tutors -- with the goal of establishing a volunteer tutor CoP. The establishment of a CoP will cultivate an environment where tutors work collectively to self-manage their practice. This semi-autonomy could enable volunteer tutor program managers to improve adult student outcomes, improve the volunteer tutor experience, improve the quality of tutoring services, and increase the number of tutors without significantly increasing program oversight requirements.

Theoretical Framework

This study used the community of practice (CoP) concept as a theoretical framework. However, to better appreciate the significance of using the CoP framework it should be situated within the extant literature on volunteer management frameworks. This literature provides a variety of volunteer management models that can be used to analyze volunteer programs. These models can be categorized into two basic frameworks, universalist and conditional (Brudney & Meijs, 2014). These frameworks provide volunteer program coordinators with a solid foundation upon which they can develop day-to-day management activities. However, these frameworks have one key limitation: they do not facilitate increasing the number of tutors without a corresponding increase in either the number of program managers, or a decrease in the program manager's ancillary tasks (i.e., non-tutor related duties). However, the CoP framework has the potential to enable a program manager to increase the number of tutors in the program while minimally increasing the program manager's tutor-related workload. To understand why this is the case, I start with a review of the universalistic framework.

Universalistic Framework

The universalistic framework is based upon the assumption that the scope and nature of volunteering is the same regardless of the context (Brudney & Meijs, 2014). This framework promotes the argument that volunteer management best practices are universal and thus apply to all organizations and volunteers without regard to organizational culture, mission, and volunteer characteristics (Brudney & Meijs, 2014). For example, the report *A Guide to Investing in Volunteer Management* (2002) includes a 23-item checklist which is purported to represent the core elements of a volunteer management infrastructure needed for the successful management of volunteers. However, some practitioners and researchers have recognized the need for differential application of the universalistic framework due to the unique characteristics of the volunteers or the environment in which they operate. In these types of situations, the conditional volunteer management framework is considered more appropriate.

Conditional Framework

The conditional volunteer management framework rejects the 'one size fits all' assumption of the universalistic framework (Brudney & Meijs, 2014). Advocates for this framework claim that volunteer management models or practices should be adjusted according to the type of organization, organizational size, the presence of paid staff, and the nature of the service the volunteers provide (Brudney & Meijs, 2014). For example, Rochester (1999) proposes four models of volunteer management to include: service delivery, support role, member/activist, and co-worker. Each of these models has a specific approach to how volunteers are utilized, recruited, motivated, and managed. Additionally, each model has different authority relationships between volunteers and paid staff (Rochester, 1999). Nevertheless, both the universalistic and conditional volunteer management frameworks have a major weakness.

Human Resource Management Approach. Volunteers under the universalistic and conditional frameworks are typically treated as a human resource to be managed (Cuskelly et al., 2006; Studer & Schnurbein, 2013). The human resource management (HRM) approach to volunteer management takes a systems approach for the recruitment, orientation, development, and retention of volunteers (Hoye et al., 2008). The HRM approach places almost all the responsibility for oversight and development of volunteers on the volunteer program manager – a paid full-time staff member (Alfes et al., 2017). This concentration of responsibility typically results in limiting the size of the volunteer program. The concentration of responsibilities creates a tipping point between a program manager's ability to meet the needs of volunteers or not meet their needs (Restler & Glant, 2020). If the organization wants to increase the number of volunteers beyond this tipping point – they must increase the number of people providing volunteer support. For many adult literacy service providers, increasing the number of paid staff members is not an option due to limited funding (ProLiteracy, 2020). However, there is another framework that can help alleviate this problem and facilitate the conditions for other improvements. This alternative framework is called a community of practice.

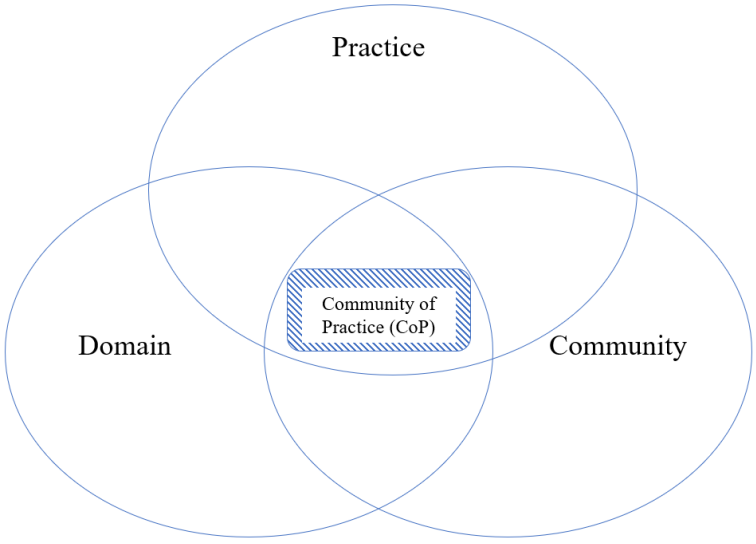
Community of Practice Framework

A community of practice (CoP) is defined as a group of people who are engaged in a practice, are passionate about it, learn from their interactions, and apply that learning to improve the practice on an ongoing basis (Andrew et al., 2008; Wenger, 2011). The purpose of the CoP is to develop the capabilities of its members by creating, expanding, and exchanging knowledge (Wenger et al., 2002). According to Wenger (2011), the CoP framework is based upon situated learning and situated cognition learning theory. These terms are often used interchangeably in

the literature and refer to learning as socially constructed knowledge (Carter & Adkins, 2017).[2] For example, when learning is a social practice, it is typically embedded in a CoP. This CoP is distinguished by several factors which include: a unifying purpose, a specific set of tools or methods, a common work environment, and a shared social context within which learning is situated (Kim & Merriam, 2010). The CoP framework has three crucial elements: the domain, the community, and the practice. When the domain, community, and practice elements function well together, they constitute a CoP that supports a social structure capable and responsible for the development and sharing of knowledge (Wenger et al., 2002). The concept map in Figure 1 illustrates the relationships between the domain, practice, and community elements within the CoP.

Figure 1

Community of Practice Concept Map



[2] "Situated learning theorists define learning as a form of social co-participation in which members of the community are not only engaged in common work practices, but they also create knowledge and shared ways of knowing through their actions. These actions are not necessarily the ones officially prescribed in job descriptions or in manuals that outline routine procedures" (Carter & Adkins, 2017, p 114).

Domain. The domain defines a set of issues, affirms purpose, inspires members to participate, guides their learning, gives meaning to actions, and creates a sense of common identity (Wenger et al., 2002). A domain is not an abstract area of interest. It consists of key issues or problems that members commonly experience. These issues and problems are complex, long-standing, and evolve over time. These circumstances require CoP members to continuously enhance their knowledge through professional development initiatives (Wenger et al., 2002). As such, membership implies a commitment to the domain (Wenger, 2011). This commitment reflects shared values. These values are what attract and motivate individuals to become a member of the domain. The domain instills in the CoP members a sense of identity, which in turn promotes the establishment of a community. The establishment of a community is what enables the recruitment of people and motivates people to serve in the community.

Community. The community is made up of people who care about the domain who are willing to share ideas, learn from each other, and trust each other (Wenger et al., 2002). The community instills trust in its members by encouraging dialogue or communications that reflect a willingness to expose one's ignorance, ask difficult questions, and listen carefully (Wenger et al., 2002). These actions are what instill in the members a sense of belonging and mutual commitment (Wenger et al., 2002). The attributes and actions of a community result in the creation of a social learning system that is critical to an effective knowledge structure (Wenger et al., 2002). The foundation of this knowledge structure is the establishment of a practice.

Practice. The practice is a set of experiences, stories, tools, and specific knowledge that the community develops, maintains, and shares (Wenger et al., 2002). Practice consists of a baseline of common knowledge that can be assumed on the part of each member (Wenger et al., 2002). This serves as a foundation upon which members create a framework for problem

analysis, shared techniques, and dialogue (Wenger et al., 2002). Members keep the knowledge foundation relevant by exploring and discussing both the existing body of knowledge and the latest advances in the field – thus creating a living curriculum (Wenger et al., 2002). Members access this knowledge through books, articles, peer-to-peer sharing, knowledge bases, web sites, and other repositories (Wenger et al., 2002). A responsive and adaptive development program is the hallmark of a practice.

The CoP framework should enable tutor program managers to gain insights about their tutors' perceptions in three key areas: recruitment, development, and retention. The domain element aligns with the activities that enable the recruitment of volunteer tutors. The community element aligns with the efforts that support volunteer tutor retention. Finally, the practice element aligns with the development of volunteer tutors. This alignment is what enables the effective implementation and sustainment of the program. The concept maps in Figure 2 reflect the alignment between the elements of tutor management and the elements of a CoP.

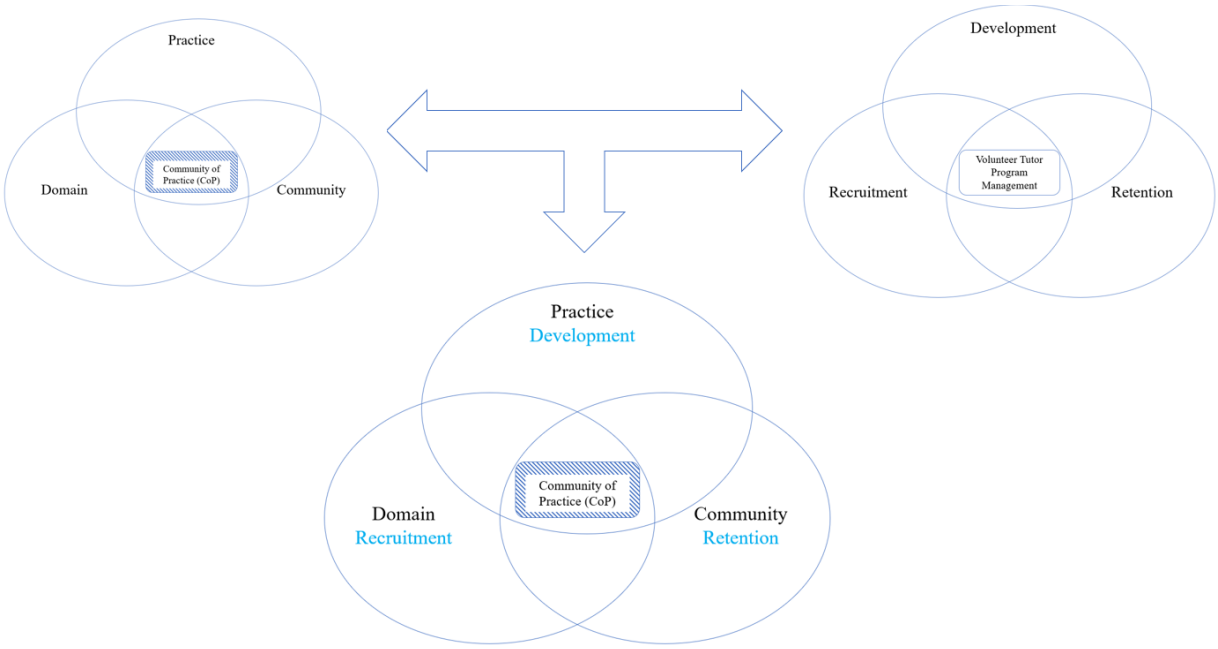
Research questions

The following research questions will guide this study:

1. What is the internal consistency estimate of reliability for the VALTPF scale?
2. What is the content-related evidence for validity of the VALTPF scale?
3. What is the internal structure validity evidence of the VALTPF scale?
4. What is the evidence for validity based upon relationships between the VALTPF scale and other variables?

Figure 2

CoP and Volunteer Tutor Program Concept Maps



Methodology

This is an exploratory scale development and validation study that utilized the CoP theoretical framework to inform the scale's development. The CoP framework was used to guide a review of the literature to identify existing survey questionnaires (and their subscales) that could be modified and used to inform the development of the VALTPFS, i.e., operationalize the CoP construct. Once relevant instruments were identified, their subscale items were reviewed and refined through feedback from item pretesting, expert reviews, and a pilot study.

Due to the preliminary nature of this instrument's development, exploratory factor analysis is best suited to examine the internal structure of the survey questionnaire. Exploratory factor analysis (EFA) is used when there has been little research done on the structure of a construct or a measure (Stapleton et al., 2019). EFA should be used when the researcher does not

know how many factors are necessary to explain the interrelationships among a set of items (Pett et al., 2003b). For example, EFA can be used to: (1) analyze responses to identify their underlying constructs; (2) identify which items can be grouped together in an instrument, and (3) investigate the dimensionality of a measurement scale (Colton & Covert, 2007).

Definition of Terms

Literacy - the ability to read, understand, and use written text in a variety of life situations.

Community of Practice (CoP) - a group of people who are engaged in a practice, are passionate about it, learn from their interactions, and apply that learning to improve the practice on an ongoing basis.

Chapter II–Literature Review

The purpose of this exploratory study is to develop and validate a Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS). The VALTPFS is a self-report questionnaire that measures the perceptions of one-on-one adult literacy tutors about their values, knowledge sharing, and satisfaction. In particular, the VALTPF scale inquires about the values that motivate tutors to volunteer, their level of knowledge sharing, and their level of satisfaction with the supports provided by their host organization. This instrument is designed to assess the perceptions of adults who volunteer to provide literacy instruction to tutees who are U.S. born native English language speaking adults (age 18+).

The first section of this chapter provides an overview of the findings from two literature reviews which investigated research on volunteers. This information is provided to facilitate situating the VALTPFS research project within the broader volunteer body of research. The first review investigates the literature to discern what motivates volunteers to donate their time to nonprofit organizations. It also explores what management factors impact volunteers. In this review, the researchers developed a typology for analysis that organized the motivations into four categories: altruism, belonging, ego and social recognition, and development and learning. The management factors identified by the literature review were organized into six categories: training, rewards, recruiting, supervision, communication, and team environment.

The second review of the volunteer literature investigates organizational factors affecting volunteers. This systematic review of the literature was conducted with the goal of identifying organizational factors that impact volunteers and to discern how these factor impact volunteer management. Based upon the researchers coding scheme, the literature was organized into three

clusters for analysis: volunteer management practices and instruments, organizational attitudes and values, and organizational factors affecting volunteers and volunteer managers.

The second section of this chapter summarizes the research of a systematic review of the literature on the efficacy of adult literacy programs with respect to the recruitment, development, and retention of one-on-one volunteer adult literacy tutors. This systematic review of the literature was conducted for two key reasons. First, adult literacy service providers in the United States have depended on volunteer tutors for decades. This dependency indicates the critical role that volunteer tutors have with respect to the provision of adult literacy services. Two, due to limited program funding, one-on-one volunteer adult literacy tutors are at the forefront of the nation's efforts to close the gap between the 43 million adults that could use adult literacy services and the system's current capacity to provide services to only 1.8 million adults annually. This large service gap provides an opportunity for the adult literacy community to focus its attention on the program management of its volunteer tutor population. In the case of this study, this means investigating the viability of using the community of practice (CoP) concept as a theoretical framework to guide the design of the questionnaire. Additionally, inherent in the questionnaire's design is an implied CoP framework for the management of volunteer adult literacy tutors.

The third and final chapter section identifies and analyzes existing instruments that will inform the development of the VALTPFS. This review of the literature resulted in the identification of five survey instruments: The Perceptions of Program Quality Support Questionnaire (Udouj, 2017), the Volunteer Functions Inventory (Clary et al, 1998), the Volunteer Satisfaction Index (Guzley, 2002), the Knowledge Sharing Behavior Scale (Yi, 2009), and the Belongingness Assessment Tool (Daniels, 2020). The Perceptions of Program Quality

Support Questionnaire (Udouj, 2017) was developed to determine what directors of adult basic education programs recognize as best practices related to program supports. The Volunteer Functions Inventory developed by Clary et al. (1998) assesses the functional motivations of volunteers. The Volunteer Satisfaction Index is a multidimensional measure of job satisfaction that was specifically designed for organizations that depend on a mostly volunteer labor force (Galindo-Kuhn & Guzley, 2002). The Knowledge Sharing Behavior Scale is designed to measure the knowledge sharing behaviors of individuals (Yi, 2009). Finally, the Belongingness Assessment Scale was developed to quantify belongingness as experience for medical students during their training (Daniels et al., 2020). All these instruments were examined, and the determination was made they contained a subscale or items that could inform the development of the VALTPFS. The details about the scope and nature of each instrument's contribution to the VALTPFS will be discussed in chapter three (Methodology).

Volunteer Research

Study One: Volunteer Research

In 2009, Ferreira et al. conducted a non-systematic review of the volunteer literature for two purposes. First, they wanted to investigate what the research literature identified as the motivations which encourage volunteers to donate their time. Second, the researchers wanted to discern what the literature was saying about the management factors that impact volunteer performance. Ferreira et al. (2009) examined approximately 70 articles, published between 1977 and 2008, that investigated volunteers which served in approximately 14 types of nonprofit organizations (NPOs). The NPO types included: hospitals, homeless agencies, human services organizations, and museums. No research on community-based literary organizations or volunteer adult literacy tutors was cited in the literature review.

Informed by the review of the literature, the researchers developed a typology that organized the motivations to volunteer into four categories, altruism, belonging, ego and social recognition, and development and learning. The most frequently cited motivations in the literature were related to altruism (Ferreira et al., 2009). Examples of altruistic motivations include helping others, solidarity, helping those in need. The researcher also determined the least frequently cited motivation was development and learning.

The second analysis conducted by Ferreira et al. (2009) was a synthesis of the types of management factors that were identified by the literature. The researchers organized the management factors into six categories: training, rewards, recruiting, supervision, communication, and team environment. Their analysis determined that the factors training, rewards, and recruitment were the most frequently identified in the research literature. Also, the literature indicated that the factors recruitment and training were more critical to a successful volunteer management system than any other factors (Ferreira et al., 2009). Finally, one study argued that well trained volunteers were the single most critical factor for a successful volunteer management system (Ferreira et al., 2009).

Finally, Ferreira et al. (2009) identified four gaps in the literature which warrant further research. These gaps included: research focusing on the differences between motivations related to recruitment verses retention, research that distinguishes and links volunteer motivations to nonprofit organizational types, and research that provides insights about how management factors (recruitment, training and rewarding) impact volunteers' satisfaction and retention (Ferreira et al., 2009).

Study Two: Volunteer Research

Studer and Schnurbein (2013) conducted a systematic review of the literature with the goals of identifying organizational factors that impact volunteers and to discern how these factors impact volunteer management. Volunteer management, also sometimes referred to as volunteer coordination or volunteer administration, is defined as the "gaining, orientating, retaining, and organizing volunteers in an organization to provide a public good" (Studer & Schnurbein, 2013, p. 406). The researchers selected 231 publications for in-depth analysis.[3] The range of publication years was 1967 to 2011, with 59% published within the last 10 years. Quantitative studies were the predominant publications (44%), followed by theoretical studies (28%), qualitative studies (18%) and literature reviews (10%). Studer and Schnurbein (2013) analysis of abstracts and coding of findings resulted in the identification of three key clusters: volunteer management practices and instruments (cluster 1), organizational attitudes and values (cluster 2), and organizational features (cluster 3).

Volunteer Management Practices and Instruments (Cluster One). The researchers determined that cluster one primarily consisted of publications that were heavily influenced by the human resource management (HRM) model. This model consists of five linear phases starting with planning (needs assessment, job descriptions, advertisements) followed by recruitment (screening, selection), performance assurance (orientation, training, monitoring, evaluation), retention (recognition, support), and separation (Studer & Schnurbein, 2013). The researchers determined that only a few empirical studies investigated the effectiveness of volunteer management practices based upon the HRM model. The findings from these studies reported mixed results. Equally important, Studer and Schnurbein (2013) identified several

[3] The publications included 148 journal articles, 28 books, 21 book sections, 15 PhD dissertations, and 19 others. Only one publication investigated volunteer adult literacy tutors.

researchers who argued that the HRM model for volunteer management was not comprehensive enough to address all volunteer management issues. Consequently, they argued there is a critical need to explore other types of volunteer management approaches or frameworks.

Organizational Attitudes and Values (Cluster Two). Cluster two included studies that investigated the attitudes, implicit assumptions, and expectations of volunteers working within an organization (Studer & Schnurbein, 2013). These studies identified several critical volunteer management issues. These issues were grouped into several categories to include volunteers and paid staff; role ambiguities; role identities; attitudes, values, organizational identity; and communications and (internal) marketing strategies.

First, the literature explored the relationship between volunteers and paid staff. A key finding was the inclusion of volunteers in the organization's decision-making processes was positively correlated with volunteer's perceptions of their treatment (Studer & Schnurbein, 2013). The literature also indicated that volunteer inclusion in the organization's decision-making processes increased the volunteer's commitment to the organization's mission (Studer & Schnurbein, 2013).

The next group of studies in cluster two investigated the issues associated with volunteer roles (i.e., duties and responsibilities) ambiguities. An important finding from this group of literature was a statistically significant relationship between low levels of volunteer role ambiguity and high levels of organizational commitment (Studer & Schnurbein, 2013). Volunteer role identities was another topic identified in the literature. Role identities were defined as the internalized norms and rules which create a cognitive schemata that enables volunteers to derive meaning from their actions, interpret incidences, and make decisions about their volunteer activities (Studer & Schnurbein, 2013). For example, one study identified a

statistically significant positive correlation between volunteer role identity, time spent volunteering, and length of service. The literature also cited the importance of cultivating a volunteer role identity by issuing items to volunteers (t-shirts, cups, book bags) which enable the volunteer to be recognized publicly for their contributions (Studer & Schnurbein, 2013). Finally, the literature cited the importance of encouraging experienced volunteers to serve as role models for new volunteers. Interactions between volunteers were cited as being critical for building a "social web" that encourages volunteers to stay engaged with the organization (Studer & Schnurbein, 2013).

In the category of attitudes, values, and organizational identity, the literature stressed the fact that volunteering is an emotional and value-based activity (Studer & Schnurbein, 2013). As such, organizations should strive to shape organizational values and attitudes to facilitate the recruitment of volunteers. For example, the researchers determined that organizational worldviews, i.e., attitudes towards change, strongly influence volunteer management approaches. This finding was derived from a study that presented a typology of volunteer coordination styles based upon a variety of organizational worldviews.

The final category of studies in cluster two pertained to communication and (internal) marketing strategies (Studer & Schnurbein, 2013). These studies investigated how organizational communication strategies enable organizations to recruit volunteers. One communication strategy was to ensure organizational recruitment communications target volunteer functional motives. This strategy is based upon research findings that a functional motive is satisfied when the volunteer task enables the volunteer to express values related to concerns for others (Houle et al., 2005; Studer & Schnurbein, 2013). Another communication strategy focused on who

receives the services of the organization. In this case, the organization should stress the neediness of the target group to attract volunteers (Studer & Schnurbein, 2013).

Organizational Features Affecting Volunteers and Volunteer Managers (Cluster Three). Cluster three included studies that investigated how organizational features impact volunteers (Studer & Schnurbein, 2013). These studies were categorized into two groups: organizational features affecting volunteers and organizational features affecting volunteer managers. With respect to volunteers, the literature indicated the most critical organizational feature for impacting volunteer behavior is the organization's mission. For example, one study provides evidence that volunteers who are very committed to an organization's purpose volunteer more hours and stay with the organization longer than those who are less committed. Other researchers provided empirical evidence that an organization's task structure (i.e., skill requirements, task significance, autonomy, and feedback) increase volunteer satisfaction, commitment to their duties, and intention to remain (Studer & Schnurbein, 2013). Finally, the literature indicated that the level of bureaucracy impacts volunteers. There was evidence that high levels of bureaucracy associated with the volunteer's duties reduced the volunteer's level of commitment to their duties and reduced their intention to remain with the organization (Studer & Schnurbein, 2013).

The organizational features that affected volunteer managers focused on the restrictions to the volunteer managers action space. A volunteer manager's action space encompasses the size of the organization, the mission of the organization, the organization's financial resources, and the number of people in an organization responsible for volunteer management (Studer & Schnurbein, 2013). For example, one researcher determined that the size of an organization was negatively correlated with recruitment problems. Larger organizations that utilize volunteers

typically have more resources dedicated to their volunteer management program than smaller organizations. This larger resource advantage contributes to reducing the scope and nature of the challenges associated with recruiting volunteers.

Study Two Identified Gaps in the Volunteer Management Research. Studer and Schnurbein (2013) identified several research gaps in their review of the literature. The first gap was attributed to the design of their systematic review. The researchers acknowledged their review did not include studies on leadership or the concept of psychological contract between the organization and the volunteer. However, apart from the design of the systematic literature review, the review resulted in the identification of three gaps in the volunteer research literature.

The most notable gap was the lack of studies on how to deal with the dysfunctionalities and expenses associated with a volunteer's behavior. The researchers argued these are two areas of research that could contribute to improvements in the management of volunteers. Research about releasing volunteers when they fail to meet expectations is also lacking. This finding is based upon the researchers' belief that all problems associated with poor quality standards in volunteer work cannot be remedied by training programs, thus additional research is needed. Finally, the researchers determined there is a scarcity of research about whether satisfied volunteers meet organizational quality standards or contribute to the achievement of organizational goals.

Volunteer Literacy Tutor Research

In the spring of 2020, in support of the requirements for a doctoral-level course and future doctoral dissertation, a systematic review of empirical research on the program management of one-on-one volunteer literacy tutors was conducted. The review was a qualitative research synthesis, i.e., a narrative review. Siddaway et al. (2019) states that a narrative review is

appropriate when a literature review examines a collection of empirical studies that have used diverse methodologies or that have examined different theoretical conceptualizations, constructs, and/or relationships. Narrative systematic reviews are appropriate when used to link together studies on different topics for reinterpretation or interconnection (Siddaway et al., 2019). The primary purpose of this narrative systematic review was the identification of empirical studies on the recruitment, development, and retention of volunteer adult literacy tutors with the goal of understanding the scope and nature of the body of research.

The systematic literature review was initiated with a search of three key databases: the EBSCOhost online reference system (which accessed the Academic Search Complete and Education Search Complete databases) and the Education Resources Information Center (ERIC) database. The search included a 20-year period starting with articles published in 1999 and ending in the year 2019. The year 1999 was selected to ensure the search captured any article published after the implementation of the Workforce Investment Act of 1998 (P.L. 105-220), Title II: The Adult Education and Family Literacy Act (AEFLA). The purpose of AEFLA was to consolidate, coordinate, and improve employment, training, literacy, and vocational programs for adults (Eyre & Pawloski, 2013). AEFLA also funded research and evaluation initiatives that focused on adult education programs and activities. The term adult education encompasses adult basic education, adult secondary education, and English language learner programs (Manning, 2003). Adult basic education (ABE) programs cater to adults who read at the eighth-grade level or below and are taught reading, writing and math skills. Adult secondary education (ASE) programs are intended for adults who read at the ninth-grade level or higher and are taught academic skills to prepare for postsecondary education or earn a high school equivalency credential. English learner programs are designed for adults whose native language is not

English. English learners (ELs) are taught English listening, speaking, reading, and writing skills with the goal of having EL students transition into ABE or ASE classes.

The database search terms were based upon conceptual elements associated with recruitment, development, and retention of volunteer adult literacy tutors who work with adult students. The conceptual elements were operationalized by the following terms: recruitment, volunteer recruitment, training, tutor training, retention, volunteer retention, literacy volunteers, and adult tutees. Subsequently, the following string of search terms, and their connecting logical operators, were used in each database: ((((recruitment OR "volunteer recruitment") OR (training OR "tutor training") OR (retention OR "volunteer retention")) AND PEER(yes)) AND ((volunteers OR tutors OR "literacy volunteers" OR "adult tutees") AND PEER(yes))). The searches resulted in the identification of 1,187 articles. There were 49 duplicates in the search results that were deleted, resulting in 1,138 articles.

The title and abstract of the 1,138 articles were examined for inclusion into the systematic review of the literature using the following selection criteria:

1. The tutors were adults (age 18+) and volunteers
2. The tutees were U.S. born native English language speaking adults (age 18+)
3. The studies focused only on adult literacy(reading)
4. Studies were published in peer-reviewed journals
5. The studies were empirical: quantitative, qualitative, or mixed methods
6. The studies addressed adult literacy programs conducted in the United States

Based upon the selection criteria, 1,122 were excluded. The full text of the remaining 16 articles were examined with the same inclusion criteria. This resulted in the exclusion of ten articles, including four studies of adult literacy programs outside the United States (Bell et al., 2010; Craddock, 2012; Perry & Luk, 2017; Sligo et al., 2019), four studies that did not focus on adult literacy tutoring (Bell et al., 2010; Brinkley-Etzkorn & Skolits, 2014; Cornelius & Gordon, 2009; McFarlane, 2016), and two studies that relied on paid professionals as tutors (Sabatini et al., 2011; Scarborough et al., 2013). Figure 3 illustrates the complete inclusion and exclusion process using a flow diagram.

Volunteer Tutor Research Findings

The systematic review method described in the previous section resulted in the inclusion of six peer-reviewed articles. The articles included one mixed-methods study, one quantitative study, and four qualitative studies. One study investigated issues related to tutor recruitment and retention and the remaining studies investigated tutor development issues (Table 1).

Ziegler et al. (2009) conducted a quantitative study to investigate the demographic characteristics and gauge the reading instruction knowledge levels of a nationally representative sample of 124 volunteer literacy tutors. This information was obtained by using the Assessment of Reading Instructional Knowledge-Adults (ARIK-A), a professional development and research tool (Bell et al., 2013; Ziegler et al., 2009). The ARIK-A has two equivalent forms (A and B) and consists of two parts. The first part collects demographic information, e.g., race, gender, type of employment (Ziegler et al., 2009). The second part is an objective assessment of the knowledge of teaching reading and consists of five sets of 14 multiple-choice items that reflect

several aspects of reading: alphabetics, fluency, vocabulary, comprehension, and assessment (Ziegler et al., 2009).

Figure 3

Systematic Literature Review Inclusion and Exclusion Decisions

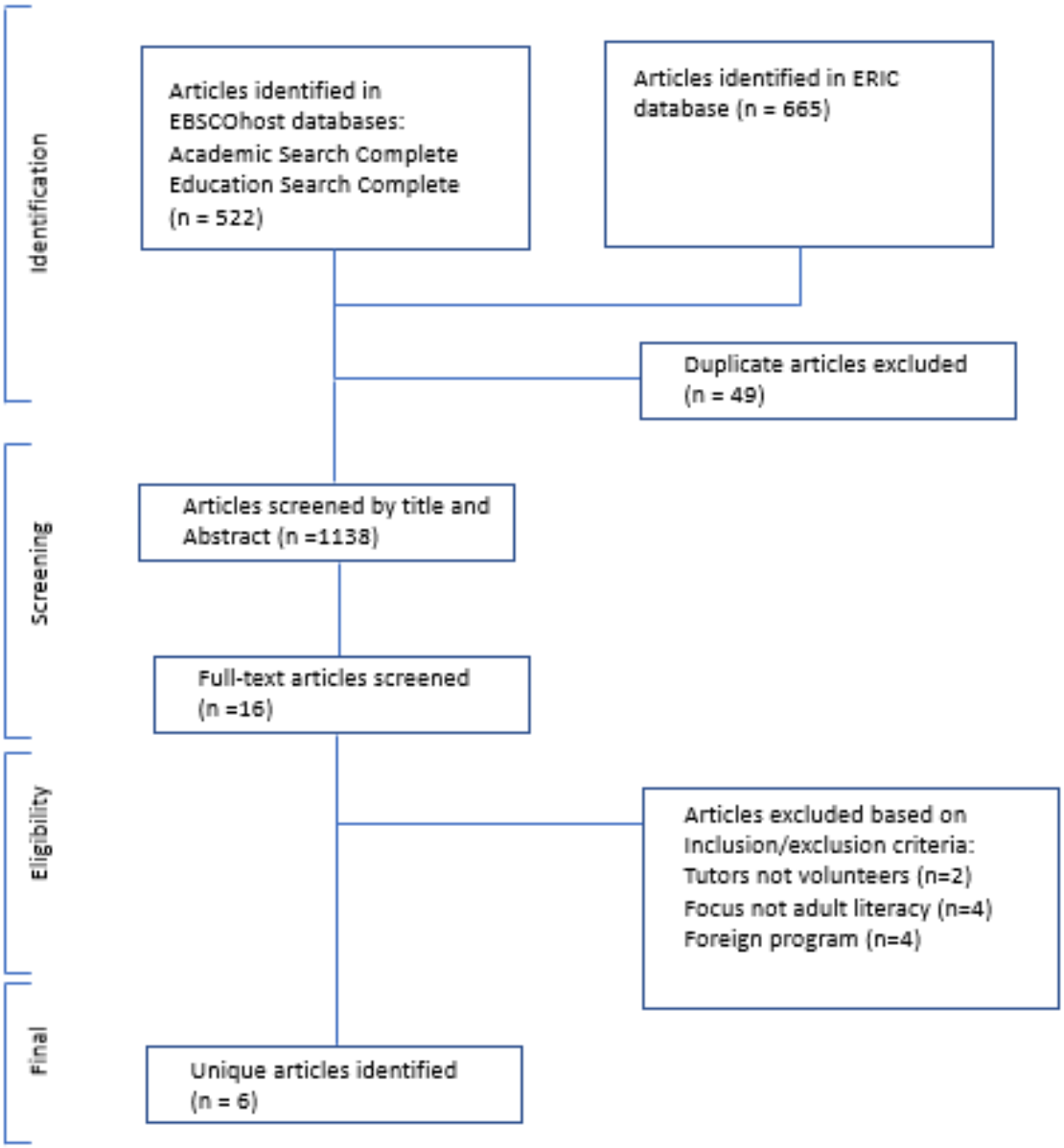


Table 1

Description of One-on-One Adult Literacy Tutor Program Studies

			Volunteer Tutor Management Element		
Author (Year)	Type of Study	Study Features	Recruitment	Development	Retention
Ziegler et al. (2009)	Quantitative	Assessed a national sample of 124 literacy volunteers using the Assessment of Reading Instructional Knowledge-Adult tool.		X	
Wymer (2003)	Mixed Methods	Survey (that included open ended questions) of 1,016 volunteers supporting 40 NPOs in two Midwestern cities.	X		X
Belzer (2006c)	Qualitative	Descriptive case study of three tutor-tutee pairs		X	
Belzer (2006b)	Qualitative	Constant comparison analysis of 12 tutor-tutee pairs from four adult basic education program.		X	
Belzer (2013)	Qualitative	Case study (interviews) of five adult literacy programs that have implemented the Just In Time (JIT) tutor training program		X	
Roderick (2013)	Qualitative	Case study (8 interviews, document analysis) of a community-based literacy organization's tutor training program		X	

Ziegler et al. (2009) determined that volunteer literacy tutors varied significantly in their teaching experiences, areas of expertise, and educational backgrounds. They also found that

volunteer literacy tutors' knowledge levels were consistent across the five ARIK-A scales (i.e., alphabetics, fluency, vocabulary, comprehension, and assessment) and reflected a 60% mastery on each scale. For the most part, increases in the ARIK-A scores corresponded with increased years of teaching experience and whether the volunteer had a teaching certification. Finally, the researchers determined there was no significant linkage between hours attending professional development and higher ARIK-A scores. The researchers defined professional development as learning by attending conferences and workshops, completing independent studies, and enrollment in college degree programs.

Wymer (2003) conducted a mixed methods analysis using quantitative and qualitative data to investigate 1,016 volunteers supporting 40 nonprofit organizations (NPOs) in two Midwestern cities. The goal of the study was to discern how literacy volunteers differed from other nonprofit organization volunteers. The researcher employed a marketing-oriented framework to analyze volunteer literacy tutor recruitment and retention. This framework treats volunteers as "customers" who require a marketing strategy that uniquely appeals to a literacy volunteer's demographics, social and lifestyle characteristics, personality, and personal values (Wymer, 2003). Logistic regression analysis was used to assess the contribution of variables as predictors of literacy volunteering.

The findings from Wymer (2003) identified five key variables that distinguish literacy volunteers: salvation (saved, eternal life), pleasure, social recognition, household size and income. In examining the value differences between literacy volunteers and other volunteers, the two groups were differentiated by three values which had negative valences. Literacy volunteers seem to feel that salvation, pleasure, and social recognition are less important than other

volunteers. Additionally, literacy volunteers were distinguished by smaller household sizes and higher incomes as compared to other volunteers.

The qualitative findings indicated that literacy volunteers tended to begin their service following a new life experience. A new life experience could be retirement, widowhood, relocation, and/or children moving out of the parent's home (Wymer, 2003). Literacy volunteers also tend to continue their service if they feel a great need for their help. Finally, literacy volunteers tend to value social (e.g., friendships between tutees and tutors) or psychological (sense of personal satisfaction or accomplishment) benefits but not tangible benefits (e.g., acquiring employment experience or knowledge).

The remaining eligible articles in this literature review pertain to the development (i.e., education and training) of volunteer one-on-one adult literacy tutors. Three articles by Belzer (2006b, 2006c; Belzer, 2013) described qualitative studies investigating the relationship between volunteer tutor training and reading instruction. The first article described a descriptive case study of three tutor-tutee pairs that investigated the interactions between volunteer tutors and their tutees (Belzer, 2006c). The case study had three focus areas: 1) tutor-tutee learning activities, 2) instructional program influences, 3) instructional challenges for tutors. For the most part, learning activities followed a structured curriculum. However, tutors often struggled selecting supplemental reading materials that were at the appropriate reading level for their tutees. Training had a very limited influence on the tutor's actions. Tutors consistently drew on their own learning experiences, their instincts, and their creativity to address learning challenges. Finally, tutors had very few instructional strategies to help their tutees overcome struggles with new words or enhancing the tutee's reading comprehension.

The second article described a constant comparison analysis of 12 tutor-tutee pairs from four adult basic education (ABE) programs (Belzer, 2006b). This study analyzed the relationship between volunteer tutor training and reading instruction implementation. The aspects of reading instruction analyzed included the tutor's selection of reading materials, strategies for enhancing the tutee's reading comprehension skills, and strategies for strengthening the tutee's word identification and word attack skills. Word attack skills are the skills needed to decode and pronounce unfamiliar words. Tutor-tutee pairs were recorded for three sequential tutoring sessions and the tapes were transcribed for analysis. Additionally, tutors and tutees were interviewed to obtain background information and discern any connections between their educational backgrounds, tutor-tutee instructional work histories, and tutor training. Data analysis consisted of coding of transcripts, theme development, and pattern analysis. The analysis resulted in several key findings.

Belzer (2006b) determined the tutor training programs had a high degree of similarity for training topics, as well as several common instructional gaps. For example, none of the training programs provided instruction on how to select tutee reading materials at the appropriate instructional level. Another training shortfall pertained to reading comprehension. None of the tutor training programs stressed the significance of teaching reading comprehension strategies. The researcher believed this knowledge gap was reflected by the limited or complete lack of comprehension work reflected in the recorded tutoring sessions. Finally, she determined the tutor training was lacking with respect to guidance about what word recognition or word attack strategies to teach, when to teach the strategy, and how to teach the strategy.

The third and final article by Belzer (2013) was a descriptive case study of five adult literacy programs that had implemented the Just in Time (JIT) tutor training model. The JIT

training protocol has four phases. The first phase, or initial tutor training, should only address topics that are universally relevant to all tutors (e.g., adult learning theories, organizational policies, and procedures). The second phase of training occurs after the tutor-tutee pair is matched and has been working together for a period, i.e., on-the-job training. The third phase of training occurs after about 12 hours of instruction. The tutor provides a recorded tutoring session for analysis and feedback. The fourth phase of training involves having an experienced staff member or volunteer listen to the recorded tutor-tutee session, followed by a meeting with the tutor to provide feedback and instructional support. Tutoring sessions are then recorded and feedback is provided at regular intervals (e.g., every 40-hours of instruction).

Belzer (2013) determined the adult literacy centers implemented the JIT model in a variety of ways. One common attribute was each program significantly reduced initial training from 12-20 hours to 3.5-6 hours. Each center used the hours associated with the shortened training time to do follow-up work with the tutors. The three centers that recorded and analyzed tutor-tutee sessions incorporated this feedback in their routine tutor check-in meetings. The recorded tutor-tutee sessions also enabled the centers to provide targeted in-service workshops. Two of the literacy centers established a tutor mentor program that enabled experienced tutors to support new tutors.

The final article was a case study of a community-based literacy organization's training of one-on-one adult literacy tutors (Roderick, 2013). The researcher analyzed tutor training evaluation reports, conducted eight semi-structured interviews, and examined training texts. The most critical findings were conflicting instructional approaches about literacy and the lack of transfer between lesson planning training and practice.

First, Roderick (2013) determined that the training curriculum contained two conflicting instructional approaches about teaching literacy, i.e., a student-centered approach and a teacher-directed approach. A student-centered approach expects the tutors to focus their tutoring efforts on the goals and expectations of the tutee (Meirovich et al., 2016; Talarr, 1995). In contrast, a teacher-directed approach to literacy is based upon the belief that literacy is a decontextualized (i.e., isolated from any social or cultural context) and universally applicable set of reading and writing skills (Smart et al., 2012). The researcher determined this conflict resulted in tutors acknowledging the learners' contextualized reading goals, (e.g., desire to pass a driving license exam or read the Bible), but their lesson plans did not include driver's license study guide materials or Bible passages. The lesson plans only used decontextualized text and materials intended to enhance the development of fluency, comprehension, vocabulary, and alphabetic skills.

Second, Roderick (2013) determined that the training had very little impact on the strategies used to plan and prepare for their tutoring sessions. His research found that tutor's approach to planning and preparing for their tutee's session was mainly based upon their tutoring experiences and the background and goals of their tutee. The researcher attributed this disconnect between training and practice to the completion of training "before" the tutor had any tutoring experience. The research concluded that the lack of real-world tutoring experience inhibited the tutors from applying the lesson planning strategies they learned in training to their specific tutoring situations.

Volunteer Tutor Research Discussion of Findings

The purpose of this systematic literature review was to gather, summarize, and integrate the empirical research on one-on-one volunteer adult literacy tutoring programs that support U.S.-born adults with low English language literacy skills. A search of three electronic databases resulted in the identification of 1,187 articles, which were reduced to six studies based on the inclusion criteria. These studies provided several important findings with respect to the recruitment, development, and retention of one-on-one volunteer adult literacy tutors.

Ziegler et al. (2009) discussed the development and implementation of the Assessment of Reading Instructional Knowledge-Adults (ARIK-A) professional development and research tool. A key finding from this study was the lack of correlation between ARIK-A scores and the amount of professional development. This finding supports the argument made by Belzer (2006a, 2006b, 2013) that tutor education and training should mainly be provided when it is needed by the tutor. This just-in-time education and training approach is designed to enhance knowledge transfer and retention, the shortfall cited by Ziegler et al. (2009).

The development of the ARIK-A tool is a significant accomplishment for the adult literacy community. This tool has been refined over the years and is now commercially available for use by researchers and practitioners (Bell & McCallum, 2020). The ARIK-A is the only nationally normed measure of adult reading instructional knowledge that is available for researchers and practitioners (Bell et al., 2013). Nevertheless, the ARIK-A only addresses the assessment of the reading instruction knowledge levels of tutors. Prior literature indicates tutors also require other competencies, as indicated in the development of the Tutor Competency and Attribute List (TCAL) and the Tutor Self-Assessment Inventory (Brown, 1981).

The Tutor Self-Assessment Inventory (TSAI) is designed to enable volunteer tutors to conduct a self-assessment of their knowledge and skills based on the TCAL (Brown, 1981). Like the ARIK-A, the TCAL competencies include reading instruction knowledge. However, it also includes competencies that enable a tutor to establish a positive interpersonal relationship with the tutee. These competencies include, but are not limited to, knowledge about the psychology of the adult learner, interpersonal relationships, and tutoring methods (Brown, 1981). The development of the TSAI and TCAL were based on a qualitative study. Consequently, more quantitative research is needed to develop empirically based tools that can assess tutor relationship competencies and thus supplement the ARIK-A tool.

Wymer (2003) determined that a group of literacy volunteers can be distinguished from volunteers serving in other types of organizations. This mixed methods study identified several key values, demographic characteristics, and background attributes that can be used to generate more effective recruiting materials. This is a significant finding since prior literature indicates many adult literacy organizations usually use universal promotional and recruitment materials designed to address all their stakeholders (Jae, 2014). These stakeholders are a diverse group that includes donors, adult literacy students, tutors, and other volunteers. The Wymer (2003) findings should be used to establish an empirical research foundation for the recruitment and retention of one-on-one volunteer adult literacy tutors. This foundation will facilitate the development of differentiated promotional and recruitment materials that target volunteer adult literacy tutors.

Although the Belzer (2006a. 206b, 2013) and Roderick (2013) are case studies, i.e., findings not generalizable, and exploratory in nature, they are still a significant contribution to the field of adult literacy. This is partly because there is a significant lack of published research on volunteer tutor training (Skinner et al., 1997; Whitehead, 2013).

Three important themes can be derived from Belzer (2006a, 2006b, 2013) and Roderick (2013). First, reading instruction for adults with low literacy skills is a complex and challenging teaching requirement (Belzer, 2006b; Curtis & Kruidenier, 2005; Smith, 2006; Talwar et al., 2018). Consequently, the amount and nature of the training does not adequately prepare volunteers to function as tutors. This is a knowledge development and transfer challenge. At one extreme, the amount of training is too short and narrow and does not address all the volunteer tutor's knowledge needs. At the other extreme, the amount of training is too long and broad and the volunteer tutor struggles with comprehension and retention problems.

Second, volunteer adult literacy tutors are not adequately prepared to address the instructional challenges that will develop when tutoring adults with low literacy skills. This is a knowledge implementation issue, i.e., the transfer of instructional training to practice. These instructional challenges range from limited strategies to help the tutee with the basic components of reading to the inability of the tutor to select the appropriate reading materials (Belzer, 2006b, 2006c).

Third, in-service tutor training should be provided only when needed by the tutor. It should also be tailored to the tutor's knowledge requirements. An attempt to address these requirements is the JIT tutor training model (Belzer, 2013). However, Belzer (2013) acknowledges the development and implementation of this model is still in the exploratory stage. So far, there is only anecdotal evidence that the JIT model is effective. Due to limited staff resources, none of the five adult literacy programs collected and analyzed quantitative data with respect to the JIT model's impact on tutor program effectiveness or tutor retention (Belzer, 2013). Nevertheless, despite the lack of empirical evidence, the Belzer (2013) JIT tutor training concept is supported by existing literature. For example, the literature (e.g., Tighe et al., 2013;

Whitehurst, 2003) emphasize that to improve a tutor's effectiveness with their tutee, there must be a strong link between a tutor's instructional training and the tutor's need for instructional knowledge – which should be based upon the tutee's knowledge needs.

Literature Review of Existing Instruments

The final part of the literature review chapter pertains to the identification and analysis of existing instruments that could be modified and used to inform the development of the VALTPFS, i.e., operationalize the CoP construct. This review of the literature resulted in the identification of five survey instruments: the Perceptions of Program Quality Support Questionnaire (Udouj et al., 2017), the Volunteer Functions Inventory (Clary et al., 1998), the Volunteer Satisfaction Index (Galindo-Kuhn & Guzley, 2002), the Knowledge Sharing Behavior Scale (Yi, 2009), and the Belongingness Assessment Tool (Daniels et al., 2020). All these instruments were examined to determine if they contained a subscale or items that could inform the development of the VALTPFS.

Perceptions of Program Quality Support Questionnaire

Udouj et al. (2017) used a survey questionnaire to determine what the directors of adult basic education (ABE) programs recognize as best practices related to program supports. The researchers developed this questionnaire to address the need for program-level systems indicators. Although there are many student outcome-based accountability systems being used by ABE programs, these outcome-based systems do not enable directors to assess program processes or operations in support of continuous improvement that can facilitate the achievement of student outcomes (Udouj et al., 2017).

The data Udouj et al. (2017) collected used a modified version of the National Center for the Study of Adult Learning and Literacy's (NSCALL's) Evidence-based Program Self-assessment (Comings et al., 2006). The participants in the study were directors of state funded ABE programs in one southern state in the U.S. The instrument used a 5-point Likert-type scale (1 - strongly disagree to 5 - strongly agree) to measure directors' perceptions in five areas: mission, management system, human resource management (HRM), and learning environment.

The mission section included four questions about the director's perceptions of the ABE program in their community. The management section consisted of 13 questions about the quality planning, evaluation, and governance of the ABE program. The HRM section contained 12 questions about personnel management. The learning environment section contained 11 questions about the suitability of the environment for adult students. The final section of the questionnaire included three questions about the demographics associated with the programs, e.g., rural or urban program, number of counties served, and type of program which provided oversight of the ABE program.

The instrument was pilot- and field-tested to acquire feedback regarding readability/clarity of the questions and other suggestions for improvement. A Cronbach alpha analysis on the completed survey resulted in an internal consistency reliability level of 0.88[4], thus indicating a good level of internal consistency for the survey instrument. The survey was web-based and the response rate was 92% (36/39). Descriptive statistics were used to analyze the responses.

[4] The researchers did not provide alpha scores for the five subscales, i.e., mission, management system, HRM, and learning environment.

Udouj et al. (2017) claim the survey results provide a point-in-time assessment of the challenges facing ABE program directors. In the area of organizational role and mission, all respondents agreed or strongly agreed they were implementing these practices. The researchers contend that respondents were satisfied with most aspects of their program management system. The item pertaining to having an adequate budget had the lowest mean of the 40 Likert-type questions. The responses about human resource management had overall above average ratings (i.e., 3.5 – 4.69), with the statement about staff having adequate pay and benefits having the lowest score (3.61). Finally, the ten questions associated with providing a suitable adult education learning environment had very favorable responses, with the scores ranging from a mean of 4.3 to 4.83. Based upon these results, the researchers advocated for the need for additional research with the goal of developing a research-based, standardized self-assessment instrument. This instrument will facilitate the assessment of the self-reported perceptions of directors of ABE programs using standardized criteria, thus enabling the comparison of ABE programs throughout the country. However, the instrument does not enable program directors to investigate their volunteer adult literacy tutor program. This statement is based upon an analysis of the instrument's human resource management subscale.

The human resource management subscale on the Udouj et al. (2017) instrument contains 12 questions. An examination of these items reveals the primary focus of this subscale is paid staff members, not volunteers. For example, one item addresses the adequacy of pay and benefits while another item pertains to the ABE program's hiring policy. Five of the 12 items address professional development issues, but they make no distinction between the professional development needs of paid staff versus volunteer staff. This lack of distinction between paid and volunteer staff also impacts two other items which address the processes of hiring and recruiting

staff members, respectively. Finally, three items on the subscale pertain to the treatment of staff as professionals and their working conditions – inquiries that are more applicable to paid staff members than volunteers. Based on these findings, the Udouj et al. (2017) instrument is not adequate for investigating the perceptions of volunteer one-on-one adult literacy tutors. This inadequacy is what drove the need to investigate other instruments to identify suitable subscales or items that could inform the development of the VALTPF scale.

Volunteer Functions Inventory

The Volunteer Functions Inventory (Clary et al., 1998) is one of the oldest and most established instruments used in research on volunteers. The Volunteer Functions Inventory developed by Clary et al. (1998) assesses the functional motivations of volunteers. The functional approach conceptual framework is based upon the belief that improvements in matching volunteer motivations to volunteer opportunities results in higher volunteer satisfaction and retention. These motivational functions include values, social, enhancement, understanding, protective, and career. Collectively, these motivational categories identify the possible reasons why people volunteer their services. The common denominator in the functional approach for understanding volunteer motivations is that all the motivations reflect a volunteer's efforts to fulfill various goals and needs (Mannino et al., 2011).

In a systematic review of the literature on the Volunteer Functions Inventory (VFI), Chacón et al. (2017) identified a total of 48 research studies that used VFI based instruments. The researchers reported that all the scales cited in the study reported acceptable reliability coefficients ranging from 0.78 to 0.90. They also stated that factor analysis was used in 26

studies; the original VFI six factors[5] were confirmed in 18 studies. What follows next is a closer examination of the development of the original VFI's psychometric properties[6] (Asunta et al., 2019; McGill, 2018).

The VFI was originally developed in 1992 and its psychometric[7] attributes were published in 1998 (Chacón et al., 2017). The VFI assesses the motivations of volunteers. It was designed to explore the phenomena that volunteers perform similar activities but for different motivations. The original VFI questionnaire consisted of six dimensions, with each dimension consisting of 5-items (Clary et al., 1998). The researchers established the reliability and validity of the VFI using a series of studies. In the first phase they investigated the VFI's construction, factor structure, and reliability. In the second phase the researchers conducted validation studies to test hypotheses associated with volunteer recruitment, satisfaction, and commitment.

Clary et al. (1998) administered the questionnaire to a sample population of 465 active volunteers serving in a variety of volunteer activities. Based upon the analysis of the results, the researchers determined the instrument had acceptable reliability scores based upon the Cronbach's alpha coefficients for each subscale and inter-scale correlation levels[8]. Additionally, the researchers conducted an exploratory factor analysis (EFA) which resulted in a six-factor solution. The researchers considered the simple structure, i.e., items loading on one factor, as

[5] A factor is a latent construct (i.e., also referred to as a latent variable, or dimension) that is unobservable, i.e., abstract, but theoretically defensible entity, such as intelligence or personality (DeVellis, 2017b).

[6] Psychometric attributes or properties refer to the validity and reliability of the measurement tool. An instrument (e.g., questionnaire) is determined to have excellent psychometric properties when there is evidence it is reliable and valid (Assunta et al., 2019)

[7] Psychometrics is defined as "a branch of scientific psychology that is concerned with the theory and technique of psychological and educational assessment and measurement and the construction of instruments that are developed to appraise psychological and educational constructs (e.g., multidimensional achievement batteries, intelligence tests, and behavior rating scales" (McGill, 2018, p 1329).

[8] The Cronbach's alpha coefficients for each of the VFI scales: career, .89; enhancement, .84; social, .83; understanding; .81; protective, .81; and values, .80. The average inter-scale correlation was .34.

evidence of the instrument's initial construct validity. Further evidence for construct validity was obtained by the researchers using confirmatory factor analysis (CFA). The researchers used CFA to analyze five-, six-, and seven- factor solutions and compared their model fit and reliability statistics. Based upon the CFA results, the researchers concluded the six-factor solution was the best model to assess volunteer motivations based upon their conceptual framework for volunteerism, i.e., they established the instrument's construct validity.

Using a different sample population of 534 participants, Clary et al. (1998) conducted a second study to establish cross-validation (i.e., replication) of their initial results. The researchers used EFA and CFA to explore whether the same six-factor solution would result from a population younger in age and more diverse in volunteer experience, as compared to the original sample. Once again, based upon model fit and reliability statistics the six-factor solution emerged as the best model, thus providing further evidence to establish the construct validity of the VFI.

A third study was used by Clary et al. (1998) to establish the temporal stability of the VFI. In this study the respondents completed the VFI on two separate occasions. Test-retest correlations were adequate for each sub-scale of the VFI, thus providing evidence for temporal stability.

In study four, Clary et al. (1998) attempted to generate evidence for the predictive validity of the VFI. In this study, the researchers explored whether the scores on the VFI instrument would be predictive of ratings on advertisements designed to appeal to the same motivations as the VFI sub-scales. The researchers concluded the results of six hierarchical

regression and correlational analysis provided evidence to establish the predictive validity of the VFI.

In a fifth study, Clary et al. (1998) investigated the ability of the VFI to predict volunteer satisfaction. In this study, evidence supporting predictive validity (i.e., criterion-related or concurrent validity) was generated by comparing the scores on the VFI with the scores from a generated functional benefits questionnaire developed by the researchers. They used a mixed factorial design and contrast analysis of VFI and functional benefits scores to generate predictive validity evidence. The researchers concluded that for each of the six VFI functions, volunteers who perceived higher levels of functionally relevant benefits (from volunteering) would report greater satisfaction with their volunteering than volunteers who perceived the benefits (from volunteering) they received were not important to them.

Volunteer Satisfaction Index

Another popular instrument used in the study of volunteers is the Volunteer Satisfaction Index (VSI). The VSI is a multidimensional measure of job satisfaction that was specifically designed for organizations that depend on a mostly volunteer labor force (Galindo-Kuhn & Guzley, 2002). The researchers developed the VSI to have four dimensions (i.e., participation efficacy, organizational support, group integration, and intent to remain), all intended to measure different aspects of satisfaction with the goal of predicting volunteer retention.

The development of the VSI was motivated by the results of a literature review of 16 articles written between 1981 and 1995 (Galindo-Kuhn & Guzley, 2002). The researchers determined no reliable instrument existed that comprehensively measured volunteer satisfaction. Based upon this finding, the researchers used information obtained from their literature review to

establish a five-dimension conceptual framework for the VSI, i.e., their initial step toward establishing construct validity. Based upon this framework they developed a 39-item survey questionnaire and collected data from 327 volunteers who fulfilled a variety of jobs in a nonprofit organization. The results of the questionnaire were analyzed using EFA. The researchers identified a four-factor solution which they considered had face validity[9]. Galindo-Kuhn and Guzley (2002) used correlation analysis to establish the reliability and multiple regression analysis to develop evidence to establish the predictive validity of the VSI.

At the time of VSI's development, no reliable instrument existed that comprehensively measured volunteer satisfaction (Galindo-Kuhn & Guzley, 2002). Therefore, the initial development of the VSI was a significant contribution to the existing literature on volunteer research. Nevertheless, the researchers acknowledged the VSI had several limitations. First and foremost, the initial VSI had no empirical evidence for its psychometric properties, i.e., the instrument needed to be validated by a confirmatory factor analysis. The literature indicates empirical evidence for the reliability and validity of the VSI instrument was developed by other researchers over the years (Benevene et al., 2020; Ling et al., 2019; Pauline, 2011; Wong et al., 2011). One example of this research involves the development of the Volunteer Satisfaction Index – Chinese.

The Volunteer Satisfaction Index – Chinese (VSI-C) was developed using a convenience sample of 1,046 secondary school students in Hong Kong (Ling et al., 2019). The researchers conducted their study using an instrument based upon the original VSI questionnaire which had been modified by Wong et al. (2011) for use in the Chinese cultural context. However, the

[9] The Cronbach's alpha coefficients for each of the original VSI scales: organizational support, 0.91; Participation efficacy, 0.84; Empowerment, 0.75; group integration; .87.

changes to the original VSI were only based upon an EFA (Wong et al., 2011). Ling et al. (2019) intended to re-examine the VSI-C to assess its psychometric properties using both EFA and CFA.

Ling et al. (2019) analyzed the VSI-C which was configured as a four-factor (i.e., organizational support, group integration, empowerment, and participation efficacy) model with 26-items. The researchers conducted EFA to analyze the VSI-C with their new sample data. They confirmed the factor ability of the data due to adequate measures of the Kaiser- Meyer-Olkin measure of sample adequacy and Bartlett's test of sphericity. Cronbach alpha, inter-item correlations, and item-total correlations were used by the researchers to generate evidence of reliability for the instrument. Based upon the results of the EFA, the researchers decided to conduct a CFA using a three-factor (i.e., relationship with organization, personal gain, and relationship to peers) model solution with 22-items.

Ling et al. (2019) used CFA on several versions of their model to determine which one had the best fit statistics. The final VSI-C model consisted of three factors and 19 items. The researchers determined the final model reflected an adequate level of internal consistency based upon the Cronbach alpha measurements. Additionally, they determined the final model had the best model fit indices (i.e., CFI, TLI, and NFI) values that met or exceeded the cutoff for a "good fit." Based upon these findings, the researchers determined their revised VSI-C instrument was psychometrically sound. Nevertheless, they still recommend further research due to their study's limitations. These limitations were attributed to the lack of random sampling, the limitations of their cross-sectional research design as compared to a longitudinal study, and the need for qualitative research to better understand the dimensions of student satisfaction in greater depth.

Knowledge Sharing Behavior Scale

As the name implies, the Knowledge Sharing Behavior Scale (KSBS) is designed to measure the knowledge sharing behaviors of individuals (Yi, 2009). The researcher defined knowledge sharing behavior (KSB) as "a set of individual behaviors involving one's work-related knowledge and expertise with other members within one's organization, which can contribute to the ultimate effectiveness of the organization" (Yi, 2009, p. 68). This definition of the construct of KSB is attributed by the researcher to the definition of knowledge sharing by Bartol and Srivastava (2002) which states knowledge sharing occurs when individuals share organizationally relevant explicit and tacit information[10], ideas, suggestions, and expertise with one another.

Yi (2009) developed evidence for the instrument's psychometric properties using 196 employees of an American technology company. The KSBS contains 28 items measuring four dimensions: written contributions (5 items), organizational communications (8 items), personal interactions (8 items), and communities of practice (7 items) using a five-response choice Likert scale (Yi, 2009). The development of these dimensions were informed by the Bartol and Srivastava (2002) framework for how individuals share their knowledge in an organization. This framework has four mechanisms for knowledge sharing to include: contributing knowledge to an organizational database, sharing knowledge formally within the workplace, sharing knowledge informally within the workplace, and sharing knowledge within communities of practice, i.e., an informal group of individuals that dialogue on a topic of common interest in a non-routine and personal manner (Yi, 2009).

[10] Explicit knowledge can be stored in documents and data systems while tacit knowledge is acquired by people through their experiences and is difficult to capture in documents or data systems (Oliveira et al, 2015).

The development of the initial KSBS item pool was informed by a review of the literature and the results of focus group interviews. These actions resulted in an item pool consisting of 32 items, with a 5-response choice scale, that aligned under four dimensions (Yi, 2009). Next, the items were subjected to a review by five knowledge management experts to generate evidence for face and construct validity. This expert review resulted in a KSBS with a four-dimensional, 28-item, 5-response choice scale.

Next, Yi (2009) conducted a pilot study using a convenience sample of 212 subjects. The data was collected using an online survey and analyzed using SAS. The internal consistency of the scale was measured using Cronbach's coefficient alpha. The overall KSBS reliability was 0.73. The internal structure of the KSBS was examined using confirmatory factor analysis (CFA). The researcher used CFA, as compared to exploratory factor analysis (EFA), since the factors and indicators were based upon an adequate theoretical base. Model fit indices included the chi-square test, comparative fit index (CFI), the normed fit index (NFI), the non-normed fit index (NNFI), the goodness-of-fit index (GFI), the root mean square error of approximation (RMSEA), and the root mean square residual (RMR). The model fit indices were examined for four models in the pilot study: two-factor model (organizational communications (OC), communities of practice (CP)), two-factor model (written communications (WC), personal interactions (PI), four-factor model (OC, CP, WC, PI) and the null model. The researcher determined that the model fit statistics from the pilot study supported all the model type assumptions.

The final study of the KSBS was conducted on a random sample of 196 employees working in a large technology company based in the United States. The data were collected using

an online survey; the response rate was 20%. All data analysis was conducted using SAS (version 8.0) software.

The reliability assessment was conducted using Cronbach's coefficient alpha and the alpha levels for the reflective scales (OC and CP) were determined to be adequate. Additionally, the formative scales (WC and PI) had low reliability values, as expected.[11] As in the pilot study, the researcher used CFA to validate the reflective indicator models. All fit indices values, and RMSA – RMR values, for the OC and CP models indicated a good fit. For the formative model testing (WC, PI), the Multiple Indicators Multiple Causes (MIMIC) model method was used. The MIMIC model method is a special type of structural equation modeling (Yi, 2009). The MIMIC test results indicated that both WC and PI models had acceptable model fits.

The final round of testing by the researcher focused on the development of validity evidence. At the time of this study, the researcher determined no other scale existed that could be compared to the KSBS to generate evidence for convergent validity. Therefore, the researcher utilized alternative methods to generate convergent validity evidence for the reflective scales. For example, the researcher considered factor loadings being twice the standard errors suggested evidence for convergent validity for the OC and CP subscales. The researcher also concluded that based on the results of the average variance extracted (AVE) test, the AVE values for OC and CP subscales provided evidence for convergent validity (Bagozzi & Yi, 1988; Fornell & Larcker, 1981; Koufteros, 1999). Finally, the researcher generated additional evidence for convergent validity by calculating the Person correlation coefficients and comparing the overall

[11] In the Yi (2009) study, the researcher's made the distinction between formative and reflective scales. The researcher's reported alpha levels of 0.91 and 0.94 for the reflective scales OC and CP respectively. The alpha levels for the formative scales (WC and PI) were 0.46 and 0.72 respectively. However, using the same questions and considering all the items to be reflective, Ramayah et al. (2014) determined the following alpha levels for the KSBS subscales: WC, 0.78; OC, 0.94; PI, 0.91, CP, 0.97.

rating scores of the KSB subscales with the survey's overall rating scores. The researcher determined that all the correlation values for the subscales were reasonable, thus providing further evidence for convergent validity.

Yi (2009) obtained evidence for discriminant validity by examining the correlations between the scores from the KSBS and the scores from the Organizational Citizenship Behavior scale (Van Dyne et al., 1994). Since the KSBS and the Organizational Citizenship Behavior (OCB) scales measured similar but different constructs, the correlation values were expected to be low or non-significant. The researcher determined the low or non-significant correlation values for the KSB and OCB scales provided evidence for discriminant validity. Finally, the researcher investigated statistical discriminant validity by evaluating the AVE. The researcher considered that statistical discriminant validity was indicated when the AVE value for each subscale was more than the squared correlation between the subscales (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). Once again, the researcher determined there was evidence for discriminant validity since all the AVE values were greater than the squared correlations between the subscales.

Finally, the researcher stated he generated evidence relevant to the external validity for the two formative subscales (WC and PI). Items from the WC and PI were correlated with the overall scores of the KSBS. The researcher determined that all items for both subscales had significant correlations with the KSBS, thus determining they should be retained.

The original work by Yi (2009) distinguishes between formative and reflective indicators in its construction of subscales. However, an examination of several follow-on studies that used

the KSBS revealed that researchers considered all the indicators to be reflective (Chuymanee & Sorod, 2018; Ramayah et al., 2014).

Belongingness Assessment Scale

The Belongingness Assessment Scale (BAS) was developed to quantify belongingness as experienced by undergraduate medical students during their training at a university in the United Kingdom (Daniels et al., 2020). The researchers defined belongingness as the extent individuals feel accepted, respected, connected with a defined group, and their professional and/or personal values are in harmony with other members of the group (Daniels et al., 2020). The BAS consists of 42 items that measure three dimensions of belongingness: secondary care experience (13 items), primary care experiences (13 items), and peer and institutional relationships (16 items). The response scale consisted of a 5-point Likert-type scale ranging from 1 (never true) to 5 (always true), and the negative items are reverse-scored.

Daniels et al. (2020) obtained evidence for face and content validity for the draft BAS from a group of six fifth-year medical students. The sample population for the BAS was drawn from the population of medical students at a university located in England. The BAS was administered as a paper questionnaire and distributed at lectures. The researchers were able to obtain 181 responses that represented a 39% response rate. After removing 36 incomplete questionnaires, the final response count was 145 which indicated a 31% response rate. The researchers used exploratory factor analysis (EFA), using the weighted least square method of extraction, as their primary means to analyze the data. The analysis software was R (version 3.6.1).

Daniels et al. (2020) determined the 42-items on the questionnaire had satisfactory overall internal consistency (Cronbach' alpha = 0.94).[12] The researchers determined the appropriateness of data for EFA was confirmed by the Kaiser-Meyer-Olkin (KMO) test which resulted in a score of 0.87. The determination about the number of factors to retain was informed by using the Kaiser criterion (i.e., eigenvalues > 1) and Cattell's scree test using a scree plot. Based upon these tests, the researchers decided upon a three-factor EFA model.

Daniels et al. (2020) next attempted to collect validity evidence for the instrument. The researcher determined evidence for convergent validity was provided by the moderate correlation between the total belongingness score and the overall satisfaction with the undergraduate medical course score ($\rho = 0.443$, $p < 0.001$). The researchers determined they had generated evidence for discriminant validity by determining the higher mean scores of belongingness for the primary care section were statistically different ($p < 0.001$, Wilcox signed-rank test) than the scores for the secondary care section, which was expected based upon anecdotal evidence from the students. Overall, the belongingness score of students in primary care placement exceeded the belongingness scores of students in secondary care placement in 85% of the respondents (Daniels et al., 2020).

In conclusion, Daniels et al. (2020) determined they had developed and validated a tool for the study of a medical student's sense of belonging. The researchers considered their analysis of the scale provided adequate evidence for internal consistency, face validity, content validity, convergent validity, and discriminant validity.

[12] The researchers did not report separate Cronbach alpha values for the three BAS subscales. Nevertheless, based upon the results from the expert review process, none of BAS items were selected for use in this study.

Summary

For the past 30 years, adult education research primarily focused on qualitative methods (Boeren, 2018; Fejes & Nylander, 2015; Nylander et al., 2018). These qualitative studies provided rich and detailed insights about adult literacy tutors, as reflected by this systematic review of the literature. For example, qualitative studies have investigated the various aspects of volunteer tutor training, tutor teaching methods, and the level of tutors' reading instructional knowledge (Belzer, 2006a, 2006b; Belzer, 2013a, 2013b; Roderick, 2013). One quantitative study investigated tutor recruitment and retention (Wymer, 2003). However, most of the research on volunteer literacy tutors involved case studies. The generalizability of case study findings to the larger population volunteer adult literacy tutors is limited (Creswell & Creswell, 2018). This is where the use of factor analysis to support survey instrument development can make a significant contribution to the body of research on adult literacy tutors.

Factor analysis could be used to develop instruments that assess the attitudes and perceptions of adult literacy tutors on the topics of tutor recruitment, development, and retention. These instruments will enable researchers to collect information from large and representative tutor populations, and thus produce findings with stronger empirical evidence to support their external validity (Creswell & Creswell, 2018). Additionally, the potential research contributions from this type of work could provide insights into subsets of tutor demographics (age, gender, level of education, number of years tutoring, employment status). Wymer (2003) is a good example of demographic-differentiating research on volunteer populations. This study of literacy volunteers provided empirical evidence for the differentiation of literacy volunteers from other volunteers. The study also provided insights into sub-groups of literacy volunteers, e.g., high performing, low performing, experience levels. Consequently, the use of factor analysis to

support the construction and implementation of survey questionnaires has the potential to contribute to the body of research on volunteer tutors. For example, survey questionnaire research could result in the development of differentiated policies, practices, and procedures to address tutor sub-groups and demographics – thus enabling tutor program managers to improve the recruitment, development, and retention of adult literacy tutors. In support of this effort to expand the development of survey questionnaire research, the review of existing survey instruments was conducted.

The review of existing instruments that could be used to inform the development of the VALTPFS involved the examination of five instruments: the Perceptions of Program Quality Support Questionnaire (Udouj, 2017), the Volunteer Functions Inventory (Clary et al, 1998), the Volunteer Satisfaction Index (Guzley, 2002), the Knowledge Sharing Behavior Scale (Yi, 2009), and the Belongingness Assessment Tool (Daniels, 2020). Of these five instruments, the last four contained subscales that could inform the development of items for the VALTPFS. Those relevant subscales are examined in detail in the methodology chapter.

Chapter III–Methodology

This chapter presents the detailed procedures that were used to develop and validate the Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS), a self-report questionnaire that measures the perceptions of one-on-one adult literacy tutors about their values, knowledge sharing, and satisfaction. The major sections of this chapter discuss participant selection and sampling, instrument testing, reliability, validity, data collection, and data analysis. However, before discussing the major sections of this chapter, it is necessary to explain why using a survey questionnaire was the best option to collect information for this research study.

Data Collection Requirements

In support of this study, information was collected from volunteer tutors who are geographically spread across six states (New York, Michigan, New Jersey, Delaware, Florida, and Virginia). The number of volunteer adult basic literacy tutors in the sampling frame was 692. Additionally, the tutors were volunteers and thus any means of collecting data from them should be convenient. Finally, the data generated was capable of being transformed into statistics that were used to quantify attitudes, opinions, and perceptions.[13]

Analysis of Data Collection Options

The data collection methods of interviews, focus groups, observations, and using secondary data are all legitimate means for collecting research data. However, their capabilities did not fulfill the data collection requirements of this project. First, qualitative interviews, focus

[13] Although this is an exploratory research study, the end goal is to establish the foundation for the development of an instrument with the appropriate psychometric properties that will produce findings that can be generalized to a larger population of volunteer adult basic literacy tutors.

groups, and observations generate data and findings that cannot be extended to a wider population. This is because qualitative findings cannot be tested to discern whether they are statistically significant and thus not due to chance (Ochieng, 2009).

Second, this research project used exploratory factor analysis (EFA) as one of its primary analysis tools. Although there is no universal agreement about the minimum sample size needed to conduct an EFA, the guidance in the extent literature indicates it is reasonable to assume the study will require at least 100 cases (Beavers et al., 2013; Howard, 2016). Due to time, travel, and cost constraints, this minimum sample size requirement eliminated the use of interviews, focus groups, and observations.

Third, the use of secondary data was not a feasible option. None of the organizations participating in the study systematically collected data on their volunteer tutor. For example, the data system used by the affiliates of a mid-Atlantic state-wide literacy organization currently does not collect the data needed (Data assistant, personal communication, June 2, 2021).

Finally, due to logistical concerns (i.e., transportation, scheduling, costs) the use of quantitative interviews, focus groups, or observations did not suffice as data collection methods. This decision was based upon the fact that the expected number of cases (i.e., respondents) potentially ranged from a minimum of 100 to over 1,000. Therefore, the logistical concerns associated with collecting data made these options untenable.

Participant Selection and Sampling

Dillman et al. (2014) defines a survey's target population as the population to which the survey is intended to describe and generalize the results to. For this survey, the target population was volunteers who provide one-on-one adult literacy tutoring services to tutees who are U.S. born native English language speaking adults (age 18+). The sampling frame for this study consisted of basic literacy tutors from three state-wide literacy organizations and three independent literacy organizations. The number of tutors in the sampling frame was 692.

Johnson and Morgan (2016b) state that there are many guidelines for the determination of a minimum sample size when conducting factor analysis. These guidelines range from number of responses-per-item ratios, striving for a minimum sample size no matter the number of items, or some combination of both procedures. Nevertheless, Johnson and Morgan (2016b) argue there is no one universally accepted guideline for minimum sample size due to the number of factors that should be considered. For example, in some studies the strength of item loadings, the number of items per factor, or whether the study has strong data[14] should be considered (Howard, 2016; Kyriazos, 2018). For this study, 228 tutors completed the survey questionnaire, thus the sample size was 228.

The primary sponsors for this study consisted of three state-wide and three independent community-based literacy organizations (CBLOs). All these organizations are incorporated as not-for-profit organizations exempt from income tax under Section 50l(c)(3) of the Internal Revenue Code, and focused on improving adult literacy.

[14] "Strong data in factor analysis is indicated by high communalities, no cross-loadings, strong primary loadings per factor and also additional variables like the nature of the data, number of factors, number of items per factor" (Kyriazos, 2018, p 2208)

As the sponsors of this research effort, all the CBLOs invited their affiliated one-on-one adult literacy tutors to participate in the development of the survey questionnaire, i.e., a convenience or volunteer sample. Access to this sample was provided by either the organization's executive director or program manager. There were no direct communications between the researcher and the volunteer tutors. Throughout the administration of the survey, CBLO executive directors or program managers released all correspondence about the survey questionnaire to their volunteer one-on-one adult literacy tutors. Samples of the correspondence, e.g., emails, study announcements, and newsletter article, are provided in Appendix A. These samples were provided to the organization's leadership as "suggested" communications only. Most CBLO leaders indicated that since they "knew their tutors best," they would either tailor the samples provided or draft their own communications. The researcher had no access to the actual emails or other correspondence used by the CBLOs to communicate with their tutors.

Item Development

This section outlines procedures used to develop the items for the Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPF). The VALTPF is a self-report questionnaire that measures the perceptions of one-on-one adult literacy tutors about their values, knowledge sharing, and satisfaction. The VALTPF consists of demographic items and items organized according to the Community of Practice (CoP) theoretical framework discussed in chapter one. This framework informs the alignment of the questionnaire items under three CoP elements, i.e., domain, practice, and community. In the following sections, survey questionnaire instruments that were investigated during the review of literature were examined for their contribution to the item pool. Additionally, as per DeVellis (2017b), the number of items in the

initial item pool should range from at least 50% larger than the final scale to three to four times as large as the final scale.

Demographic Items

On 10 June 2021, a presentation about this research project was made to the leadership of a large state-wide literacy organization and its affiliates, the initial primary sponsor for this study. Over 30 people attended with most of the attendees being either executive directors or program managers of the CBLOs affiliated with the state-wide organization. Based upon the dialogue during the post-presentation Q&A session, the group decided that no information would be collected on the survey questionnaire that would identify the organization affiliated with the tutor. The attendees were uncomfortable with the fact data could be collected and used to compare organizations to each other based upon the tutor responses.

The items on the questionnaire that generated demographic data were informed by several sources. These sources include the 2021 American Community Survey, the 2021 Library of Congress customer survey, the 2021 American Association for Public Opinion Research (AAPOR) conference attendee survey, and the 2021 ProLiteracy annual member survey. The questionnaire has eight demographic questions. These questions inquire about the tutor's gender, ethnicity, race, age, level of education, number of years tutoring, number of hours tutoring per week, and employment status.

CoP Framework Items

Although the idea of CoPs has existed for about 30 years, the operationalization of the CoP construct for a particular organizational function or work environment has been very challenging (Addicott et al., 2006; Pyrko et al., 2017; Swan et al., 2002). This is one of the

reasons why the development and validation of the VALTPF is considered exploratory. The initial development of the questionnaire item pool consisted of items derived from the review of existing instruments that contained subscales that could be used to operationalize the elements of a CoP, i.e., domain, practice, and community. The questions selected for the initial item pool were adapted to correspond to the adult learning context.

Domain. The Volunteer Functions Inventory (VFI) was designed to assess the motivations that influence volunteers (Chacón et al., 2017). It is a 30-item questionnaire that consists of six subscales of five items each. The six subscales address the following motivations: values, understanding, social, career, protective, and enhancement. These subscales are scored using a 7-point Likert-type scale (where 1 is *totally disagree* and 7 is *totally agree*).

A review of the VFI subscales indicated the values and enhancement subscales could be used to operationalize the domain CoP element. The values subscale addresses a person's values related to caring for others (Clary et al., 1998). The enhancement subscale addresses a person's desire to do activities that will enable them to feel better about themselves (Clary et al., 1998). Therefore, the ten items associated with these subscales were included in the initial item pool.

Practice. The Knowledge Sharing Behavior Scale (KSBS) contains 28 items measuring four dimensions: written contributions (5 items), organizational communications (8 items), personal interactions (8 items), and communities of practice (7 items) using a five-response choice Likert scale (Yi, 2009). However, other researchers have used a seven-response choice Likert scale (Ramayah et al., 2014).

A review of the KSBS subscales resulted in the selection of the personal interactions and communities of practice subscale items to operationalize the practice CoP element. The personal

interactions subscale pertains to the sharing of knowledge through informal dialogues between individuals (Yi, 2009). Personal interactions reflect a "person-to-person" means of sharing knowledge, typically tacit knowledge. Tacit knowledge is defined as the kind of knowledge that resides in the minds of people, is accumulated over time, and is difficult to put into writing or to verbalize (Asrar-ul-Haq & Anwar, 2016). Examples of this category of knowledge sharing include people talking in the hallway, over the phone, or online to help a fellow worker.

The Communities of Practice (CoP) subscale pertains to knowledge sharing activities that occur when people meet on a voluntary basis to discuss topics of common interests on a non-routine frequency. Knowledge is shared informally through "person-to-group" channels in highly personalized manners. This type of knowledge sharing typically occurs when individuals share their knowledge with the belief that others will share their knowledge, i.e., they expect reciprocity. This behavior is based upon trust that is established when both parties share their knowledge due to shared passions, problems, or interests (Yi, 2009). Therefore, the fifteen items associated with these subscales were included in the initial item pool.

Community. The survey items that will operationalize the community element of the CoP were drawn from two instruments, the Volunteer Satisfaction Index (VSI) and the Belongingness Assessment Scale (BAS). The original VSI was a 26-item questionnaire developed by Galindo-Kuhn and Guzley (2002) to measure the satisfaction of volunteers. The researchers used the following lead-in statement "Please indicate your level of satisfaction with the following," and the respondents used a seven-point Likert-type scale (1 = Very Dissatisfied; 7 = Very Satisfied) to rate each item.

The VSI has four dimensions to include: participation efficacy (7 items), organizational support (12 items), group integration (4 items), and empowerment (3 items). All subscales are intended to gauge a volunteer's intent to remain with the organization. A volunteer's intent to remain with an organization, or retention, is a proxy for the volunteer's sense of belonging to a group. A review of the VSI subscales indicates the organizational support and group integration subscales can be used to operationalize the community CoP element. The organizational support items pertain to the satisfaction that the volunteers derived from their interactions with members of the organization (Ling et al., 2019). An example of an item for "organizational support" is "the availability of getting help when I need it." The group integration items pertain to breadth and quality of relationships a volunteer has with other volunteers within the organization (Ling et al., 2019). An example of "group integration" is "the amount of interaction I have with other volunteers in the organization." As such, the sixteen items associated with these subscales were included in the initial item pool.

The Belongingness Assessment Scale (BAS) consists of 42 items that measure three dimensions of belongingness: secondary care experience (13 items), primary care experiences (13 items), and peer and institutional relationships (16 items). The response scale consists of a 5-point Likert-type scale ranging from 1 (never true) to 5 (always true), and the negative items were reverse-scored for analysis.

Secondary care experience items pertain to the learning environment where medical students worked in small groups alongside junior doctors and typically required the students to engage in self-directed learning. Primary care experience items pertained to learning situations where medical students worked alongside senior doctors usually with a 1:1 or 1:2 student to doctor ratio. Finally, peer and institutional relationships items addressed a student's sense of

identity formation with peers, doctors, the medical school, the university, and the medical profession. Due to the nature of this subscale, all 16 items were included in the initial item pool. A summary of the instrument scales used to generate the initial item pool to operationalize the community of practice framework is provided in Table 2.

Validity Evidence Items

The items that were used to generate validity evidence are discussed in detail in the section titled "Evidence Based on Relationships to Other Variables."

Instrument Testing

There are three primary procedures to investigate the quality of a newly developed survey questionnaire: pre-testing, pilot testing, and field testing. Unfortunately, these terms are sometimes used interchangeably, thus confusing the distinctions between them (Colton & Covert, 2007). The extant literature indicates there is usually a progressive and developmental relationship between these terms, i.e., testing starts with pre-testing, followed by pilot testing, followed by field testing.

Pretesting often focuses on the quality of individual items. It is accomplished throughout the item or question generation phase of test development (Burns & Kho, 2015; Colton & Covert, 2007). Pilot testing often refers to the testing of an entire draft instrument for process and administrative procedures under the conditions, and in an environment, for which it is designed (Colton & Covert, 2007; Mertens & Wilson, 2019).

Table 2

Operationalization of Community of Practice Framework: Initial Item Pool

CoP Dimension	Instrument	Subscale	#Items	Example Items
Domain	Volunteer Functions Inventory (Clary et al., 1998)	Enhancement	5	Tutoring makes me feel important
		Values	5	I feel it is important to help adults learn to read
Practice	Knowledge Sharing Behavior Scale (Yi, 2009; Ramayah, 2014)	Personal Interactions	8	I keep other tutors updated with important tutoring related information through personal conversation
		Communities of Practice	7	I meet with other tutors to create innovative solutions for problems that occur when tutoring
Community	Volunteer Satisfaction Index (Galindo-Kuhn & Guzley, 2002)	Organizational Support	12	How often the literacy organization acknowledges the work I do
		Group Integration	4	The amount of interaction I have with other volunteer tutors in the organization
	Belongingness Assessment Scale (Daniels et al., 2020)	Relationships	16	I feel a sense of belongingness to the other volunteer adult literacy tutors
		Total:	57	

Note: The total initial item pool for the questionnaire included the 57 items cited above plus eight demographic questions and 20 questions associated with the subscales used to collect validity evidence. The total initial item pool had 85 questions. The questions selected for the initial item pool were adapted to correspond to the adult learning context.

Field testing typically occurs just prior to the finalization of the instrument. Field testing usually uses a group of test takers who are representative of the population for which the instrument is designed to provide data (Dorfman & Hersen, 2001; Mislevy & Knowles, 2002; Shillingburg, 2016). Additionally, the sample population should be large enough to enable statistical analysis to investigate the instrument's psychometric properties (Johnson & Morgan, 2016b; Mislevy & Knowles, 2002).

Nevertheless, this study did not include a field test as previously described. A pilot study was used to examine the final draft instrument. This study had the attributes of both the pilot and field tests described in the previous paragraph. For example, the pilot study tested the final draft instrument for questionnaire administration and implementation monitoring. Additionally, the pilot study sample population was large enough to investigate the instrument's psychometric properties. Finally, lessons learned from the pilot study informed the full study which was implemented immediately following the pilot study.

Although most of the items in the initial item pool were obtained from instruments with evidence demonstrating adequate psychometric properties, i.e., published reliability and validity estimates, Tavakol and Dennick (2011) suggest that new uses of these instruments should be examined. Since this study is a new application of these subscales, all the items in the initial item pool were analyzed for reduction, pretested, and evaluated using a pilot study before the questionnaire was finalized.

Item Reduction

The initial item pool contained a total of 85 items. These items had different response scale ranges (i.e., 5- and 7-point scales), different response types, and some items had a lead-in

statement. The initial effort to reduce the number of items investigated all these issues. The initial item reduction effort was conducted by the researcher in consultation with adult literacy practitioners, i.e., executive directors, program managers. Item reduction actions primarily occurred during the expert review and pilot study stages of the research project. The item reduction effort reduced the item pool from 85 to 42 items.

Initial Item Pretesting

The pretesting of questionnaire items is a process to determine whether the items on a questionnaire will cause problems for the respondents (Ikart, 2019). For this study, preliminary item pretesting was conducted by 15 adult literacy practitioners. These practitioners were recruited, i.e., a convenience sample, from the community-based literacy organizations (CBLOs) that were targeted to support either the pilot study or the full study. The practitioners were provided a link to the draft survey and were asked to provide feedback if they found any issues or had any concerns about the questionnaire. This broad guidance was intended to achieve two purposes. First, to introduce the study and its associated questionnaire to potential sponsors of the study. This introduction was intended to relieve the anxiety expressed by some CBLO executive directors and program managers about having their tutors participate in the research project. Second, to initiate the first wave of item pretesting. The second wave of item pretesting occurred during the expert reviews.

Expert Reviews

Expert reviews are a questionnaire evaluation method that utilizes a group of people with a variety of backgrounds and training to analyze questionnaires to reveal potential problems and reduce measurement error (Ikart, 2019; Olson, 2010). For this study, a panel of seven experts

was used to pretest the questionnaire and make item reduction recommendations (see Table 3). The panel primarily consisted of personnel with backgrounds and expertise in the operations of leading and managing organizations that provided literacy services to adults. Additionally, an independent researcher was asked to serve on the expert review panel due to their background in public administration research and practice.

Table 3

Expert Review Panel

Number of Experts	Position, Expertise
1	Executive Director, State-wide literacy organization
2	Executive Director, Community-Based Literacy Organization (CBLO)
2	Volunteer Tutor Program Manager, CBLO
1	Volunteer Tutor Training Specialist, Library Based Literacy Organization
1	Independent Researcher, PhD Public Policy and Administration
Total: 7	

The expert review process was conducted in three stages. The first stage involved a one-on-one Zoom session with the expert. This session was conducted to discuss the review requirements. During this session the reviewer was afforded the opportunity to ask any questions about the review process, confirm the review timeline for completion, and acknowledge the expected outputs and outcomes. The completion of the Zoom session initiated the start of stage two.

The second stage involved the actual review of the questionnaire by the expert. After the Zoom session, an email was sent to the reviewer to initiate the review process. This email contained a link to the draft questionnaire and two attachments. The first attachment was a copy of the full questionnaire in MS Word format. The reviewer was expected to annotate the

document (i.e., track changes, comments) and provide feedback on whether any of the questions were confusing, the fit between items and response choices, and order of questions. The second attachment was a worksheet. This worksheet contained instructions on how to provide a summary of their recommendations with respect to the retention, reduction, modification, or deletion of survey questions. The completion of the online questionnaire and provision of feedback by the reviewer initiated the final stage of the expert review process.

That last stage of the expert review process involved a Zoom session during which the researcher and expert conducted a review of the feedback. This process helped to ensure the researcher fully comprehended the expert's feedback. Upon the completion of the expert reviews, the researcher made modifications to the questionnaire to ensure it was ready for the next phase of the study, i.e., the pilot study.

Pilot Study

The pilot study was conducted using the final form of the questionnaire and the full implementation procedures. One goal of the pilot test was to determine whether the final draft questionnaire and administration procedures are adequate (Dillman et al., 2014). The respondents for the pilot study were recruited from a pool of adult English Learner (EL) tutors who are volunteers from four community-based literacy organizations (CBLOs). Two of these organizations are based in Virginia. The other two CBLOs are based in Michigan and New York respectively.

A second goal of the pilot study is to conduct preliminary analysis of the response data. Dillman et al. (2014) states that the pilot study can provide researchers the opportunity to gain insights about several aspects of the questionnaire's design and implementation to include: item

nonresponse, response distributions, response comments, and response rates. Additionally, the pilot study provided the opportunity to evaluate the functionality of the QuestionPro survey dashboard.

Reliability

Acock (2018b) defines reliability as a measurement process that produces consistent results. Reliability also refers to the degree to which measurement scores are impacted by random error (Mitchell & Jolley, 2012). In other words, reliability is concerned with consistency and the forms of errors that could impact the consistency of measurement. In the area of instrument development, the analysis of reliability enables instrument developers to examine consistency of scores associated with a survey scale (Johnson & Morgan, 2016b). Reliability is considered a prerequisite for an instrument's validity, but it does not guarantee validity (Mitchell & Jolley, 2012). There are several means to investigate reliability to include: internal consistency, item-test [item-total correlation], and inter-item correlation. Each one of these reliability indexes, or types of reliability, are explored in the following paragraphs.

Internal Consistency

Internal consistency is defined as the degree to which each item on a scale is correlated to the other items (Mitchell & Jolley, 2012). The measure of internal consistency examines whether the items in the instrument scale are a source of error. When items are included on a scale, they are typically drawn from a pool of possible items representing a latent variable. An internal consistency analysis provides information about the quality of each item's relationship to the others and to the scale itself. This information can be used to inform decisions about item inclusion or removal from the scale. The quality of a scale's internal consistency can be

examined using Cronbach's alpha. Cronbach's alpha (α) is the most often-used measure of internal consistency and has a range of values from 0 to 1 (Tavakol & Dennick, 2011). Acock (2018b) suggests the following interpretations of α levels: an α level greater than 0.70 is adequate; greater than 0.80 indicates a good level; but greater than 0.90, "then one should consider reducing the number of items" (Johnson & Morgan, 2016b, p. 131).

Item-test [item-total] correlation

The term "item-test correlation" is the same as "item-total correlation" (Garson, 2014; Krishnan, 2013). The item-test [item-total] correlation is defined as the Pearson correlation coefficient calculated for pairs of scores where one item of each pair is an item score and the other item is the total scale score (Colton & Covert, 2007; Salkind, 2010). The higher the value of the coefficient, the stronger is the correlation between the item score and the total test score. This correlation level is an indicator of the internal consistency of the scale. A high positive item-total [item-test] correlation indicates an item is good at discriminating between high and low performing items on the scale.(Garson, 2014). Items with a low item-total correlation means they have a small correlation with the overall scale and thus should be considered for removal (Garson, 2013).

Inter-Item Correlations

An inter-item correlation is the correlation of one scale item to another item in the same scale. It is calculated by comparing the average score for each item to the average score of every other item in the scale (Colton & Covert, 2007). A rule of thumb for inter-item correlations is any value greater than or equal to 0.30 is considered exemplary (Bearden & Netemeyer, 1999). Higher inter-item correlations will increase alpha, but correlations over .80 may indicate

multicollinearity (Garson, 2013). Oftentimes inter-item correlations are examined when the researcher wants to remove or add items to a scale with the goal of increasing alpha. However, this addition or subtraction of scale items and the associated impact on the alpha level will depend on the quality of the dropped/added items and the total number of items in the scale. This analysis is a trade-off. DeVellis (2017a) states that items that have item-test correlations almost equal to the average item-test correlation, adding more items will increase alpha and deleting items will decrease alpha. As a general rule, shorter scales are considered good because they decrease the response burden. However, scales with more items tend to be more reliable.

Validity

The *Standards for Educational and Psychological Testing* (2014) indicate that validity refers to the extent for which evidence and theory support the interpretation of scores for a proposed purpose. It is not the scale itself that is validated; rather, it is the interpretation and uses of the survey scale scores that are validated (Kane, 2009). As a general rule, all valid measures are reliable (Garson, 2013). There are several sources of validity evidence to include: evidence based upon content, evidence based upon internal structure, and evidence based upon relations to other variables. The following sections will investigate each of these sources of validity evidence.

Evidence Based Upon Content

Evidence based upon content is said to exist when there is a strong relationship between the instrument's content and the construct it is intended to measure (Johnson & Morgan, 2016b). Based upon the standards, "validity evidence can be obtained from an analysis of the relationship between the content of the test [questionnaire] and the construct it is intended to measure" (2014,

p. 14). Evidence based content was obtained from a review of the literature, by reviews of people representing the sample population, and by the evaluation of the content by experts.

Evidence Based Upon A Literature Review

A review of the relevant literature provided evidence supporting content validity. It did this by establishing the boundaries of the CoP construct being operationalized by the survey scales. Next, it provided evidence that the survey items were within the boundaries and are representative of the construct (Johnson & Morgan, 2016b). In this study, evidence based upon the review of the literature identified three proxies to represent the key elements of a community of practice: domain, practice, and community.

The review of the literature resulted in evidence for content validity associated with the domain element. One of the key attributes of the domain element is a person's motivations to participate in an activity (Wenger et al., 2002). The analysis of the literature resulted in the identification of the Volunteer Functions Inventory (Clary et al., 1998). This instrument measures a person's motivation to volunteer. As such, a review of the VFI's subscales resulted in the determination the values and enhancement subscales contained items that could be used to operationalize and inform the development of items that gauge what inspires people to volunteer as tutors. Additionally, the functional motivations that are assessed by the VFI, when matched by volunteer tasks, are considered key indicators for the successful recruitment of volunteers (Clary et al., 1998; Erasmus & Morey, 2016; Gonzalez, 2009).

The review of the literature resulted in evidence for content validity associated with the practice element. The practice element is defined as a set of experiences, tools, and specific knowledge a community develops, maintains, and shares (Wenger et al., 2002). For this study,

the sharing of knowledge will operationalize the practice element. As such, the review of the literature resulted in the identification of the Knowledge Sharing Behavior Scale (Yi, 2009). In particular, the items from the personal interactions and communities of practice subscales were considered for informing the development of the items that will operationalize the practice element.

Finally, the review of the literature resulted in evidence for content validity associated with the community element. The review resulted in the identification of two instruments that could operationalize and inform the development of the community element. The instruments were the Volunteer Satisfaction Index (VSI) (Galindo-Kuhn & Guzley, 2002) and the Belongingness Assessment Scale (BAS) (Daniels et al., 2020). The VSI's group integration and organizational support subscales measure different aspects of satisfaction with the goal of predicting volunteer retention. The BAS contains 42 items that are designed to gauge the extent to which individuals feel accepted, respected, and connected with a defined group.

Evidence Based Upon Item Evaluation

Evidence based upon item evaluation was obtained from pretesting, expert reviews, and a pilot study (Cizek, 2020). A researcher, literacy organization executive directors, volunteer tutor program managers, and a volunteer tutor training specialist were asked to determine whether the instrument items make sense for measuring the study's constructs (Acock, 2018a).

Evidence Based on Internal Structure

The analysis of the internal structure of a scale can provide evidence of construct validity. Internal structure is the relationships among scale items and dimensions that conform to the construct upon which the scale score interpretations are based (Rios & Wells, 2014). A method

to determine whether the internal structure, or dimensionality, of a scale is congruent with the dimensions of a latent variable (representing the theoretical construct) is factor analysis (Johnson & Morgan, 2016b). For example, exploratory factor analysis can be used to initially define the internal structure for a scale's set of items. In follow-on phases of instrument development confirmatory factor analysis (CFA) can be used to generate evidence of construct validity (Pett et al., 2003b; Rios & Wells, 2014). CFA provides construct validity evidence by confirming the number of underlying dimensions and their respective item factor loadings (Rios & Wells, 2014).

Factor Analysis. Acock (2018a) defines factor analysis as a collection of analytical techniques that can be used to determine if scale items can be grouped into meaningful clusters. The goal is to have all the items in the scale form an independent factor. A factor is a latent construct [latent variable] that is unobservable, but its existence is theoretically defensible, e.g., burnout, anxiety, motivation, self-direction (Broda, 2020; Field, 2013). Factor analysis attempts to explain the maximum amount of common variance in a correlation matrix using the smallest number of latent factors, i.e., parsimony (Broda, 2020; Field, 2013). When conducting factor analysis, researchers strive to ensure that each scale represents one dimension. If the items on the scale represent one dimension, then the items should at least moderately correlate with each other with a consistent pattern of correlations (Acock, 2018b). Field (2013) states factor analysis has three primary uses: (1) to comprehend the structure of a group of variables; (2) to construct an instrument to measure a latent variable; and (3) data reduction.

Factor Analysis Assumptions. There are a few assumptions associated with factor analysis. First, a set of underlying factors exists within a collection of observed variables (Pett et al., 2003b). Next, since the initial steps of factor analysis (e.g., exploratory factor analysis) are conducted using Pearson product moment correlations, several of the assumptions associated

with this statistic pertain to factor analysis (Pett et al., 2003b). For example, all bivariate relationships are assumed to be linear and there is no multicollinearity (i.e., very high correlations) or singularity (i.e., perfect correlations) (Johnson & Morgan, 2016b).

Dimensionality. A construct, or latent variable, is defined as a concept, idea, or attribute that is not directly observable (Johnson & Morgan, 2016b). They are structures or processes that are theorized to underlie observed phenomena and can be composed of several domains or components (Johnson & Morgan, 2016b). A construct is considered "operationalized" when it can be defined by observable, sometimes called empirical, indicators that can be measured. These indicators are used in instrument development since they can be linked to the theoretical base of the construct and thus can contribute to the content and construct validity of the new instrument (Pett et al., 2003b)

Constructs can have factor structures that are unidimensional or multidimensional (Colton & Covert, 2007). A scale that measures a single construct is said to be unidimensional when the entire set of items measure only one underlying factor (Johnson & Morgan, 2016b). Scales are rarely completely unidimensional. Consequently, a scale can be considered unidimensional when a single factor accounts for most of the variation in responses (Johnson & Morgan, 2016b). Scores for these single factors can be calculated based upon the individual item responses that reflect an overall amount or position on the construct. (Johnson & Morgan, 2016a). Two common methods of determining unidimensionality include computing Cronbach's alpha, or using confirmatory factor analysis (Garson, 2014). When a set of items measure more than one construct, i.e., as indicated by more than one factor, then the set of items is considered multidimensional (Johnson & Morgan, 2016a, p. 148)

Factor Analysis Techniques. Researchers use factor analysis to explore the underlying dimensions of a construct of interest. There are two basic types of factor analysis: exploratory and confirmatory. Exploratory factor analysis (EFA) is used when there has been little research done on the structure of a construct or a measure (Stapleton et al., 2019). EFA should be used when the researcher does not know how many factors are necessary to explain the interrelationships among a set of items (Pett et al., 2003b). For example, EFA can be used to: (1) analyze responses to identify their underlying constructs; (2) identify which items can be grouped together in an instrument, and (3) investigate the dimensionality of a measurement scale (Colton & Covert, 2007).

In contrast, confirmatory factor analysis (CFA) is used to assess the extent to which the hypothesized organization of a set of identified factors fits the data (Pett et al., 2003b). CFA is used when the researcher has some knowledge about the underlying structure of the construct under investigation. For example, CFA can be used to investigate the underlying dimensions of a construct identified through EFA (Pett et al., 2003b). Additionally, CFA can be used to compare factor structures or test hypotheses concerning the linear structural relationships among a set of factors associated with a specific theory or model (Pett et al., 2003b).

Exploratory Factor Analysis (EFA). Two of the most prominent approaches to conducting EFAs are principal axis factor (PF) analysis and principal component factor (PCF) analysis (Acock, 2018a). PF attempts to identify factors based only on the shared variance of the scale's items (Broda, 2020). Principal axis factor analysis is probably best to use when the goal is to identify two or more latent variables representing the dimensions (i.e., latent variables) of a construct (Acock, 2018a). PCF attempts to identify factors that account for all the variance in the

scale's items (Broda, 2020). PCF should be used when the researcher has reason to believe a set of items represent the core of one construct or dimension (Acock, 2018a).

Tests of Matrices. Before a researcher begins to conduct an exploratory factor analysis, the correlations among the items should be analyzed. This analysis is to determine whether the level of correlations is significant enough to justify conducting factor analysis (Pett et al., 2003a). Two means of conduct this analysis are the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin test

Bartlett's Test of Sphericity. The Bartlett's test of sphericity tests the null hypothesis that there is no relationship among the items in the correlation matrix, indicating the observed matrix is not factorable (Pett et al., 2003a). This means that the observed correlation matrix is equal to the identity matrix, i.e., there is no relationship among the items as indicated by the matrix having all 1's on the diagonal and 0's on the off-diagonal (Beavers et al., 2013). Larger values of the Bartlett's test, or when the test is found to be significant, indicate the null hypothesis can be rejected (Pett et al., 2003a).

Kaiser-Meyer-Olkin Test. The Kaiser-Meyer-Olkin test (KMO) of sampling adequacy can be used to gauge the level of shared variance in items (Beavers et al., 2013; Howard, 2016). Consequently, the KMO level indicates the strength of relationships among variables or items in a correlation matrix (Vogt, 2005). The KMO test compares the magnitudes of the calculated correlation coefficients to the magnitudes of the partial correlation coefficients (Pett et al., 2003a). The KMO values range from 0 to 1.0 and the following criteria can be used to evaluate KMO levels: above .80 is great, .70 to .80 is good, and less than .60 is poor (Pett et al., 2003a;

Vogt, 2005). A KMO value of .70 is frequently considered a minimum for conducting factor analysis (Vogt, 2005).

EFA Core Steps. There are five core steps associated with exploratory factor analysis. These steps include: assessing the adequacy of the correlations, run initial (unrotated) factor analysis, extracting the initial factors, factor rotation, and factor scoring (Broda, 2020; Pett et al., 2003b).

Assessing Correlations. Accessing the correlations can be accomplished by the examination of the item-test [item-total] correlations, item-rest correlations, and the inter-item correlations (Acock, 2018a). Consistently low correlation values (i.e., $r \leq 0.05$) or very high correlation values (i.e., $r > 0.8$) should be considered for removal (Broda, 2020).

***Initial Factor Analysis*.** After running the initial factor analysis, the factor loadings are assessed to determine how the items loaded or clustered around each factor. A standardized loading of 0.4 is considered the minimum indicator of a good loading (Acock, 2018a). A loading of 0.4 means the "factor explains 16% ($0.4^2 = 0.16$ or 16%) of the variance in the item responses" (Johnson & Morgan, 2016b, p. 154). Ideally, each factor should have at least three or more items loading onto it (Johnson & Morgan, 2016b).

***Extraction*.** The extraction of the initial factors is the next step in an EFA. The process will produce eigenvalues. An eigenvalue is defined as the amount of variation explained by a factor (Johnson & Morgan, 2016b). An eigenvalue represents the relative strength of each extracted factor and the sum of the eigenvalues in any model is equal to the total number of items in the model (Johnson & Morgan, 2016b). As a rule of thumb, a researcher should only retain factors with eigenvalues greater than one and a factor solution (i.e., the factors with the highest

eigenvalues) should explain more than 50% of the total variance (Acock, 2018a; Johnson & Morgan, 2016b).

A scree plot is a graphic display of the eigenvalues (Acock, 2018a). The scree plot is examined to determine where the plot starts leveling off or where an elbow appears in the plot (Acock, 2018a; Johnson & Morgan, 2016b). The number of factors to be extracted is indicated by where the plot starts to level off (Johnson & Morgan, 2016b).

***Factor Rotation*.** Factor rotation refers to the process of making a factor solution more interpretable without changing the actual underlying structure of the data (Johnson & Morgan, 2016b). Factor rotation turns the reference axes of the factors about their origin with the goal of achieving a simpler structure, i.e., each item loading strongly onto only one factor (Pett et al., 2003b). There are two types of rotations, orthogonal and oblique.

An orthogonal rotation, meaning “right angled”, assumes the factors are uncorrelated (Johnson & Morgan, 2016b). There are three primary types of orthogonal rotation procedures (e.g., equimax, quartimax, and varimax), with varimax being the most common type of rotation technique used (Johnson & Morgan, 2016b). The varimax rotation procedure is designed to maximize the variances of the standard factor loadings which are summed across all factors (Johnson & Morgan, 2016b).

An oblique rotation method assumes the factors are correlated (Johnson & Morgan, 2016b). For this type of rotation method, the rotation axes are not necessarily perpendicular. Promax and direct oblimin are the primary rotation procedures for an oblique rotation (Johnson & Morgan, 2016b).

Factor Scoring. Once the factor solution has been interpreted it can be named by examining the content of the items that loaded onto each factor. Once the factors are named, they should be scored so that the researcher can determine how much of the construct is represented by the responses (Johnson & Morgan, 2016b). Factor scores can be calculated using three primary methods: factor total scores, factor mean scores, and factor scores. Factor total is simply the sum of the responses on each factor (Johnson & Morgan, 2016b). A factor mean score is determined by calculating the mean of all the items aligned under a factor (Acock, 2018a). Finally, the factor score is a standardized value with a mean of 0, a standard deviation of 1, and is weighted to acknowledge the relative contributions of the items (Acock, 2018a; Johnson & Morgan, 2016b). One of the advantages of calculating factor scores is that they can be used as predictor variables in other studies (Pett et al., 2003b).

Limitations of EFA: The name "exploratory factor analysis" is a good indicator that this process has several limitations and should be primarily used as an initial investigation into a scale's structure and properties. One commonly cited limitation of exploratory factor analysis (EFA) is the level of subjectivity associated with the methodological decisions a researcher must make (e.g., sample size, rotation method, scoring method) may impact the accuracy and/or replicability of the results (Beavers et al., 2013)

Additionally, there are three limitations associated with EFA (Broda, 2020). First, there is no means to statistically compare different solutions (i.e., *p*-values or model fit statistics). Second, rotations can technically generate an infinite number of solutions with no empirical method to identify which is optimal. Third, each item in an EFA does not have its own error term despite the fact some items fit better than others.

Evidence Based on Relationships to Other Variables

DeVellis (2017b) argues that an instrument or measure indicates its construct validity when it correlates with established measures of other constructs the way the construct purports it should behave. In other words, evidence for construct validity can be provided by evidence of an instrument's convergent, discriminant and concurrent evidence. Convergent validity evidence can be provided by different indicators of theoretically similar constructs that are moderately to strongly correlated (Brown, 2015; Cizek, 2020). Divergent validity evidence can be provided by different indicators of theoretically different constructs that are not strongly correlated (Brown, 2015; Cizek, 2020). Concurrent validity evidence can be obtained when data is collected concurrently, i.e., data from the newly developed instrument and data from an established instrument, when both instruments measure the same construct of interest (Cizek, 2020). Concurrent validity evidence is indicated by strong and positive correlations between the instruments' scores (Cizek, 2020).

Due to time constraints, an abbreviated traditional literature review was used to identify potential established measures of other constructs that could be used to generate construct validity evidence. Unlike a systematic review of the literature, a traditional literature review lacks the defining characteristics of a systematic review which include: a priori review protocol, an explicit search strategy, a synthesis of findings, and a summary of findings (Munn et al., 2018). The literature review used a "key word" search strategy and the snowballing technique, i.e., checking references or citations in selected articles to identify relevant literature (Lock & Seele, 2017; Wohlin, 2014). The primary search criteria were the identification of instruments with established reliability and validity credentials that could be used to generate validity evidence based upon relationships to other variables. This review resulted in the identification

and analysis of the Organizational Citizenship Behavior scale (Smith et al., 1983), the Organizational Commitment questionnaire (Mowday et al., 1979), and the Behavioral Intention Formation Knowledge Sharing questionnaire (Bock et al., 2005). These instruments were used by Ramayah et al. (2014) to generate validity evidence for the original Knowledge Sharing Behavior Scale (Yi, 2009). Based upon this precedent, the decision was made to investigate the use of these instruments to generate validity evidence for the VALTPFS. This analysis resulted in the decision that items from these instruments, adapted to correspond to the adult learning context, were suitable to generate validity evidence. Detailed information about the instruments analyzed to generate concurrent validity evidence is provided in the following sections.

Concurrent Validity Evidence -Instrumentation. The Organizational Citizenship Behavior (OCB) scale consists of 16 items that are aligned under two subscales: altruism (8 items) and generalized compliance (8 items).[15] As defined by the researchers, "OCB represents individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, that in the aggregate promotes the effective functioning of the organization" (Smith et al., 1983, p. 4). Examples of the behavioral contents of OCB include helping, volunteering, persisting with extra effort, following rules, and no complaining. For this study, five of the eight items associated with the altruism subscale were used to generate validity evidence.

The Organizational Commitment questionnaire (OC) consists of 15 statements.[16] The items on the OC scale are designed to assess a respondent's organizational loyalty, desire to stay

[15] The Cronbach's alpha reliability estimates were 0.88 for the altruism subscale and 0.85 for the generalized compliance subscale.

[16] The Cronbach's alpha reliability estimate for the 15 items on the OC scale was 0.90

with the organization, belief in the organization's goals, and willingness to do what is needed to ensure the organization is successful (Nguni et al., 2006). Examples of items include "I am willing to put in a great deal of effort beyond that normally expected to help this organization be successful" and "I am proud to tell others that I am part of this organization." All items are rated on a 7-point, Likert-type response scale (Khasawneh et al., 2012). For this study, eight of the 15 items associated with the OC subscale were used to generate validity evidence.

The Behavioral Intention Formation Knowledge Sharing (BIFKS) questionnaire consists of 38 items that are aligned under nine subscales.[17] All measures use a five-point Likert scale ranging from 1-extremely unlikely to 5- extremely likely or 1-very rarely to 5- very frequently. The subscale of interest to this study is the "attitudes toward knowledge sharing." This subscale has five items. Item examples include "my knowledge sharing with other organizational members is good' and 'my knowledge sharing with other organizational members is an enjoyable experience." Therefore, the five items on the "attitudes toward knowledge sharing" subscale were used to generate validity evidence.

Data Collection

The tutors received an email detailing the scope and nature of the survey and importance of their participation. It also contained a link to the survey which was hosted on the university's QuestionPro survey platform. The initial screen for the survey contained the consent form. The tutor had to click on the link "*I accept"* to access the survey questions. The tutors had approximately 2-weeks to complete the online survey. They also had the option of stopping the survey and returning later to complete it. To return to the survey, the tutors were asked by the

[17] The Cronbach's alpha reliability estimates for the nine BIFKS subscales ranged from 0.87 to 0.93. The Cronbach's alpha reliability estimate for the 'attitude toward knowledge sharing" subscale was 0.92.

QuestionPro program to provide an email address so a unique survey link could be sent to them. Once the link was transmitted, the QuestionPro program discarded the email address.

Data Analysis

The statistical analysis software used for this study is the Statistical Package for the Social Sciences (Stata Version 14) (StataCorp, 2015).

Item Analysis

The responses were examined using descriptive statistics and inferential tests to identify cases of missing data, test for multicollinearity, test for normality, and check for ceiling or floor effects. The examination of ceiling and floor effects and dispersion is especially critical when scores could be combined into an aggregate measure (AERA et al., 2014).

The descriptive statistics included the calculation of the number of responses, number of missing responses, mean, standard deviation,[18] minimum, maximum, skewness,[19] and kurtosis.[20]

The normality of the data was analyzed using the mean, median, and measures of skewness. For example, if the mean is greater than the median, this indicates the distribution of the variable is positively skewed, i.e., the distribution trails off to the right indicating the skewness value is greater than zero. If the mean is less than the median, this indicates the distribution is negatively skewed, i.e., the distribution trails off to the left indicating the skewness value is negative. When the mean and

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[18] The standard deviation (sd) is a measure of dispersion. Smaller sd's indicate a more homogeneous distribution and larger sd's indicate a more heterogeneous distribution (Acock, 2018, p 98, 112).

[19] Skewness is a measure of whether a distribution trails off in one direction or another. A normal distribution has a skewness of 0. If the skewness is greater than 0, the distribution is positively skewed. If the skewness is less than zero, the distribution is negatively skewed (Acock, 2018, p 285)

[20] Kurtosis measures the thickness of the tails of a distribution. A normal distribution will have a kurtosis of 3.00. A value less than 3.00 means the tails are too thick and the distribution is flat in the middle, i.e., indicating too few cases. Values greater than 3.00 indicates the tails are too thin and the distribution if too peaked in the middle, i.e., too many cases in the middle (Acock, 2018, p 285)

median are approximately equal, this indicates the distribution is nearly symmetrical and the skewness value is close to zero, thus indicating a normal distribution. Recommended values for skewness range from ± 1.0 (Chan, 2003) to ± 2.0 (Kunnan, 1998). For this study, skewness values within the range of ± 2.0 were considered acceptable.

The normality of the data will also be analyzed by examining kurtosis. The kurtosis pertains to the shape of the distribution. It is a measure of the thickness of the tails of the distribution (Acock, 2018; Coolidge, 2013). In Stata, a kurtosis value of 3.0 indicates a normal distribution. Values less than 3 indicate the tails are too thick and the shape of the curve is flat in the middle. Values greater than 3 means the tails are too thin and the curve is too peaked in the middle. According to Acock (2018a) values greater than 10 are considered problematic and values greater than 20 are considered very serious. However, for this study, kurtosis values within ± 6.0 are considered as representing normality (Decarlo, 1997).

The Stata routine “sktest” is another test for normality (D'Agostino & Belanger, 1990). For each variable, the “sktest” investigates normality based upon skewness and kurtosis, and then combines the two tests into an overall test statistic (Royston, n.d.). For each of these tests, the null hypothesis is that the data are distributed normally. As such, significant p-values indicate the distribution is not normally distributed. The results of the “sktest” can be combined with the results of the “summarize” command to obtain both values and probabilities for skewness and kurtosis (Acock, 2018a).

The Stata routine “mvtest norm” will test for multivariate normality. The “mvtest norm” routine performs tests of univariate, bivariate, and multivariate normality (Doornik & Hansen, 2008; Henze & Zirkler, 1990; Mardia, 1970). The “mvtest norm” assumes independent samples for all multiple-sample tests. Additionally, for each of the tests, the null hypothesis is that the data are distributed normally. Therefore, significant *p*-values indicate the distribution is not normally distributed.

Ceiling and floor effects occur when the majority of the respondents use the extreme score for a response to a survey question (Koretz, 2008). Ceiling and floor effects are considered errors of measurement due to the restriction in range that results in a small variance or standard deviation for a distribution (Allen, 2017). Frequencies and percentages of responses to questionnaire items were calculated using the Stata routine "fre" to assess the dispersion of responses.

The last two steps in the analysis of items pertains to outliers and multicollinearity. Descriptive statistics (e.g., min, max) and histograms will be generated to determine the presence of outliers. Multicollinearity is said to exist when two or more variables are highly correlated to each other (Acock, 2018a; Field, 2013). A correlation matrix of items was generated to assess the assumption of no multicollinearity.

Chapter IV - Results

This chapter details the results from the data analyses. The chapter begins with a discussion of the results for the pretesting, expert reviews, and the pilot study. Next, the full study results are examined in detail. This examination includes the investigation of descriptive statistics, analysis of normality assumptions, reliability, and validity. The chapter concludes with a summary of the findings for each research question.

Pretesting

As discussed in chapter three, preliminary item pretesting was conducted by 15 adult literacy practitioners. There were two goals associated with the questionnaire pretesting. The primary goal was to have the practitioners provide feedback if they had any concerns or issues. None of the practitioners identified any concerns or issues.

A secondary goal was to generate interest about, and support for, the research project. The logic being if established practitioners were involved in the pretesting of the questionnaire, they would eventually expand awareness about the project and generate support to participate in the project. Evidence that this strategy was successful is provided by the fact that all the organizations that participated in the pretesting also participated in other aspects of the research project.

Expert Reviews

The expert review process consisted of a panel of seven experts who pretested the questionnaire, provided feedback on question quality, and made item reduction recommendations. Each expert confirmed it took them less than 10 minutes to complete the questionnaire. Additionally, the experts provided feedback that resulted in every question being

modified to improve respondent comprehension. For example, all subscale identification codes were removed from each question. The experts felt the codes would be a distraction to the respondents. Another major modification was adding the word "I" to the beginning of each the Knowledge Sharing Behavior Scale – Personal Interaction subscale questions. Equally important, the experts identified the need to explain to participants why some of the questions might seem redundant. This apparent question redundancy was due to the inclusion of additional questions (subscales) that were needed to collect validity evidence. The introduction to the survey was modified to address this concern. The expert review resulted in the elimination of 44 items, of which 16 items were from the Belongingness Assessment Scale. This scale was designed for medical students and the items were determined to be not suitable for modification to an adult learning context. A summary of the item reduction actions is provided in Table 4.

Table 4

Expert Review Item Reduction Summary

Core Instrument Subscales	Initial Item Pool	Expert Review Reductions
Volunteer Functions Inventory-Values	10	5
Knowledge Sharing Behavior Scale- Personal Interactions	15	5
Volunteer Satisfaction Index- Organizational Support	16	5
Belongingness Assessment Scale	16	0
Validity Evidence Subscales		
Organizational Citizenship Behavior	7	6
Behavioral Intention Formation Knowledge Sharing	5	5
Organizational Commitment	8	8
Demographic Questions	8	8
Total:	85	42

Note: The pilot study also included one open-ended question "Do you have any comments or feedback about the questionnaire?," for a total of 43 questions.

Finally, the expert reviewers were asked to select either the Organizational Citizenship Behavior (OCB) questionnaire or the Organizational Commitment (OC) questionnaire for inclusion in the survey. The criterion for selection was "what subscale (and questions) would be most understandable by, or suitable for, volunteer adult literacy tutors?" Acknowledging this criterion was very subjective, the reviewers were advised to make this decision based upon their knowledge and experience.

The results of the review were inconclusive. Although there was a strong preference for the OC subscale (3 votes) versus the OCB subscale (1 votes), the 15 votes for which five of the eight OC questions to retain were almost evenly spread across the eight questions. Additionally, the one expert reviewer that selected the OCB subscale made a strong argument for its inclusion in the questionnaire. Consequently, the decision was made to include eight OC and six OCB items in the pilot study questionnaire. The logic supporting this decision was based upon two factors. First, the retention of both subscales was based upon the fact it took each expert reviewer less than 10 minutes to complete the questionnaire, so the additional questions were not a time concern. Second, since this was an exploratory study, the use of both subscales might provide insights with respect to validity evidence based upon relationships to other variables.

Pilot Study

The questionnaire used for the pilot study contained 42 items, plus one open-ended question at the end of the survey (i.e., Do you have any comments or feedback about the questionnaire?). The pilot study was conducted with the support of four community-based literacy organizations. Two of these organizations are in Virginia, and the other organizations are in Michigan and New York. The pilot study was conducted using the final draft version of the 42-item questionnaire. The pilot study had two goals. The first goal was to determine whether

the final draft questionnaire and administration procedures were adequate. The second goal was to conduct preliminary analysis of the pilot study response data to gain insights about the design and functioning of the questionnaire. This preliminary analysis resulted in q25 (In addition to tutoring, I volunteer for other organizational activities) being dropped from the questionnaire, thus raising the Cronbach's alpha score for the OCB subscale from 0.78 to 0.82. The elimination of q25 reduced the number of items in the Organizational Citizenship Behavior (OCB) subscale from six items to five items. Consequently, the questionnaire used for the full study contained 41 items.

Administrative Procedures

The pilot study provided confirmation that the administrative procedures associated with the fielding of the questionnaire were effective. The study was administered over a two-week period. All key phases of the study were tested to include study launch, reminder notifications, and closeout. Confirmation of the effectiveness of these actions was provided by the daily monitoring of the QuestionPro survey dashboard. This dashboard provides the status of several questionnaire metrics in real-time (see Table 5).

Pilot Study Sample Population

The respondents for the pilot study were obtained from a convenience sample which was recruited from a pool of English Learner (EL) tutors. Originally, the intent was to use basic literacy (BL) tutors for the pilot study. The intended use of BL tutors for the pilot study was based upon the recommendation that participants in the pilot study should be recruited from the same population that will be used to complete the operational or full survey (Dillman et al.,

2014; Johnson & Morgan, 2016b). However, due to the impact that the COVID-19 virus had on the volunteer tutor population, this practice was not feasible.

Table 5

QuestionPro Survey Dashboard Metrics

Metric	Description
Viewed	The viewed count is the total number of times a survey link was clicked on. It acts as a page counter to give you an estimate of the number of times the survey was opened on a browser.
Total Responses	This is total number of respondents that have started the survey
Completed	The completed count is all respondents that have gone through the whole survey and completed it, i.e., they clicked on the Finish button on the last page of the survey.
Completion Rate	This is equal to the Completed count divided by the Total Responses count.
Dropout	This is the number of respondents who start the survey but do not complete the survey.
Average time to complete the survey	Average time (minutes) taken by respondents to complete the survey.

Note: The source for the dashboard descriptions is the online QuestionPro Help Database

At the initial planning stages for this study, the estimate for the number of BL tutors that would be available was 1,000 – 1,500. However, approximately one month prior to the start of the pilot study the researcher was notified by the study's primary sponsor that only 262 tutors[21] were available to participate in the research project (Executive Director, State-Wide Literacy Organization, Zoom session, September 30, 2021). The steep decline in the availability of BL

[21] The determination of the number of BL tutors was based upon a state-level Department of Education mandated audit.

tutors was attributed to COVID-19 and the unfolding pandemic. This dramatic decline in the primary sponsor's BL tutor population was the trigger for the decision to recruit EL tutors for the pilot study, which were also impacted by COVID-19.[22] [23] These tutors provide services (e.g., reading, writing, grammar, pronunciation, etc.) which are very similar to BL tutors. The key difference is EL tutors work with adults who are not U.S. born native English language speakers.

The sampling frame of EL tutors for the pilot study was 930 tutors. A total of 251 EL tutors completed the questionnaire. The response rate was 27 percent. The summary numbers for the pilot study are in Table 6. The sociodemographic characteristics of the survey respondents was collected using eight questions that inquire about the respondent's gender, ethnicity, race, age, level of education, tutoring experience, number of hours tutoring, and current working situation (see Appendix B).

Table 6

Pilot Study Final Numbers: English Learner Tutors

Description	Count	Percent
Sampling Frame	930	100
Number of tutors who clicked on the survey link to view the survey	414	46
Number of tutors that started the survey	301	32
Number of tutors that dropped out of the survey	50	17
Number of tutors that completed the survey	251	83
Average time to complete the survey (minutes)	11	
Response Rate	27%	

Note: Response rate = # of completed surveys (251)/sampling frame (930) x 100 = 27%

[22] English Language tutors work with adults who are not U.S. born native English language speakers. English Language (EL) tutors typically provide support for basic literacy academic skills (e.g., reading, writing, grammar, pronunciation, etc.). In the United States, community-based literacy organizations (CBLOs) often offer both EL and BL tutor programs for adult students. However, some CBLOs will emphasize one program over the other based upon the adult learner demographics of the community in which they serve.

[23] The population of EL tutors was also impacted by COVID-19. One executive director of a CBLO which utilized EL tutors stated their EL tutor population was reduced from 417 to 234 tutors (Executive Director, CBLO, email, September 13, 2021).

Data Cleaning and Management. After the survey was closed, the data was exported into a Microsoft Excel file. This enabled the cleaning of the data. Extraneous data in several columns was deleted from the file. The resulting Excel file only contained the response identification number, the questions, and their responses. This file was then imported into Stata.

Once imported, the data was converted into a format that would enable analysis. This conversion mainly included the renaming of variables, defining variables, and the creation of value labels for all items in the questionnaire. All the coding related to these actions were documented in a Stata "do" file.

Data Analysis. Once the data was properly coded, it was used to conduct a preliminary analysis of the response data. The data was analyzed for missing data, response distributions, correlations, Cronbach's alpha, and factor analysis. The last question on the questionnaire used in the pilot study was an open-ended question asking the tutors "Do you have any comments or feedback about the questionnaire." The responses to this question were analyzed to identify any common themes.

Frequency Analysis. The response distributions were analyzed using the Stata "fre" routine. [24] The analysis verified that the QuestionPro program had accurately recorded the responses to the survey questions. No outliers were identified. Additionally, the analysis did not identify any major problems with missing data or missing responses.

[24] Source: https://www.stata.com/statalist/archive/2007-04/msg00420.html

Correlation Analysis. The correlation analysis did not identify any potential issues with multicollinearity. All correlations were < 0.90 and no items had consistently low correlations < .10.

Cronbach's alpha analysis. Cronbach's alpha was calculated to investigate the reliability of each of the subscales used in the questionnaire. Only one subscale contained an item that, if dropped, would increase the alpha level. This item was dropped from the questionnaire and the resulting alpha scores for the subscales ranged from 0.81 to 0.91.

Factor analysis. Factor analysis was conducted to investigate the internal structure of the questionnaire items. The tests of matrices include the Kaiser-Meyer-Olkin test and the Bartlett's test of sphericity. The Kaiser-Meyer-Olkin statistics was .88, and Bartlett's test of sphericity chi-square was significant (χ^2 (861) = 5259.648, p < .001). These results verified the sampling adequacy for performing an EFA (Field, 2013). The resulting factor analysis, after Oblique Rotation (also called Promax), identified six factors which corresponded with the six subscales on the questionnaire. Additionally, only two items loaded onto more than one factor . These results confirmed there were no major problems with the internal structure of the questionnaire items.

Open-Ended Question Analysis. The last question on the questionnaire used in the pilot study was an open-ended question asking the tutors "Do you have any comments or feedback about the questionnaire." This question resulted in 68 comments. The main theme that emerged from the analysis of the comments was the tutors did not understand the purpose of the study. Based upon this feedback, organizations involved in the full study were asked to remind their tutors the purpose of the study was to develop and validate a tutor questionnaire. The purpose

was not to collect responses to discern tutors' attitudes, perceptions, or behaviors. The welcome page for the final study was also updated to better reflect the purpose of the study.

The second major theme that emerged from the tutor comments was the continued perception that some of the questions were redundant. To address this problem the order of the questions was modified. This change resulted in the insertion of the Behavioral Intention Formation Knowledge Sharing subscale questions between the Organizational Citizenship Behavior (OCB) and the Organizational Commitment (OC) subscales. The OCB and OC subscales represent different dimensions of the CoP, and thus the questions could appear to be redundant. To address this concern, the order of the scales was changed to ensure they were not adjacent to each other on the questionnaire.

Full Study Results

Descriptive Statistics, and Analysis of Assumptions

The sampling frame for this study consisted of 692 adults who volunteer to provide, or have experience providing, one-on-one basic literacy tutoring to adults with low literacy skills who are U.S. born native English language speakers. The sample size consisted of 228 tutors, which resulted in a survey response rate of 33 percent. The average time to complete the survey was eight minutes, as compared to 11 minutes for the pilot study. This shorter time was attributed to the fact that the pilot study included one open-ended question "Do you have any comments or feedback about the questionnaire?" The summary numbers for the full study, along with the pilot study, are provide in Table 7.

Sociodemographic Characteristics of Survey Respondents.

The sociodemographic characteristics of the survey respondents was collected using eight questions that inquire about the respondent's gender, ethnicity, race, age, level of education, tutoring experience, number of hours tutoring, and current working situation (see Appendix B). Most of the respondents were female (78%), not of Hispanic, Latino, or Spanish origin (95%), white (85%), and above the age of 64 (64%). The majority (43%) of the respondents had a master's degree and their main working situation was retired (63%). Finally, the majority of respondents provided 1-2 hours per week tutoring (68%) and had 3-4 years of tutoring experience (48%). The profile of the survey respondents closely matches the tutor demographics produced by ProLiteracy,[25] a national umbrella adult literacy organization.

Table 7

Pilot Study & Full Study Final Numbers

	Pilot Study		Full Study	
Description	Count	Percent	Count	Percent
Sampling Frame	930	100	692	100
Number of tutors who clicked on the survey link to view the survey	414	46	631	91
Number of tutors that started the survey	301	32	295	43
Number of tutors that dropped out of the survey	50	17	67	23
Number of tutors that completed the survey	251	83	228	77
Average time to complete the survey (minutes)	11		8	
Response Rate	27%		33%	

Note: Full study response rate = # of completed surveys (228)/sampling frame (692) x 100 = 33%

ProLiteracy supports over 1,000 member adult literacy programs in all 50 states. Each year ProLiteracy sends its member organizations a survey that collects statistical data about

[25] ProLiteracy is a trademark name which uses a capital L in its spelling.

programs' instructors, student populations, funding sources, and methods of instruction. The results of this survey are published in an annual statistical report. After conducting a review of the annual reports from 2015 to 2020, a national-level composite profile of volunteer basic literacy tutors was generated. This analysis resulted in a composite profile indicating most of the ProLiteracy tutors are female (74%), above the age of 60 (48%), and approximately one-third of the tutors (36%) had a master's degree (Smith, 2021b). On these three key demographics, the survey respondents closely approximate the national population of ProLiteracy volunteer adult basic literacy tutors.

Item Analysis. The responses were examined using descriptive statistics (see Appendix C) and inferential tests to identify cases of missing data, test for multicollinearity, test for normality, and check for ceiling or floor effects.

Missing Data: The questionnaire was completed by 228 tutors. There were 41 items on the questionnaire**.** This means there was a total of 9,348 possible responses to the questionnaire. The analysis of missing data indicated only 15 missing responses. This number of missing responses represented less than .001 percent of the total responses, and thus could be considered missing completely at random (Acock, 2018a). Based upon this determination, for all analysis the listwise deletion method was used for handling missing data.

Correlation Matrix: A correlation matrix (see Appendix D) was used to investigate the assumption of multicollinearity. No item correlation is greater than 0.90 and no items demonstrated consistently low correlations less than .10. These results provide evidence that the assumption of no multicollinearity is satisfied (Field, 2013).

Analysis of Normality Assumptions

Volunteer Functions Inventory- Values (VFI-V): The VFI-V subscale used a 5-point Likert-type response scale (1 = strongly disagree to 5 = strongly agree). The normality of the distribution of the VFI-V responses was analyzed by the examination of the subscale's skewness and kurtosis values (see Appendix C), using Stata's "sktest" routine for normality (see Appendix E), and Stata's "mvtest" routine for multivariate normality (see Appendix F). The values of skewness were between -4.39 and -2.54, and kurtosis ranged between 9.46 to 25.88. None of the skewness and kurtosis values were within the acceptable values of ± 2.0 and ± 6.0 respectively (Decarlo, 1997; Kunnan, 1998). This finding was also confirmed by the Stata "sktest" routine for normality. Each question in the VFI-V subscale had a significant p-value ($p < .001$), thus indicating the distribution was not normally distributed. Finally, Decarlo (1997) states that univariate normality is a precondition for multivariate normality. As such, since the subscale items were determined not to be normally distributed, it can be reasonably assumed the subscale items are not multivariate normality distributed. To confirm this line of reasoning, the VFI-V subscale items were subjected to the Stata "mvtest" for multivariate normality. Significant *p*-values ($p < .001$) for all four of the multivariate normality tests rejected the null hypothesis of multivariate normality.

Descriptive statistics were used to investigate the existence of any ceiling or floor effects. The means of the VFI-V subscale's items ranged from 4.5 to 4.8 out of 5. The median for all items was 5.0, the top of the scale. Additionally, for each item the median exceeded the mean indicating the distribution of the variable is negatively skewed. This negative skewness was also confirmed by the large (i.e., greater than two) negative skewness values. As such, the mean, median, and skewness values indicated VFI-V subscale items reflect a ceiling effect (Allen,

2017). This assessment is supported by the results of the histograms generated for each of the VFI-V subscale items (Appendix G).

Knowledge Sharing Behavior Scale – Personal Interactions (KSBS-PI): The KSBS-PI subscale used a 4-point Likert-type response scale (1 = never to 4 = often). The normality of the distribution of the KSBS-PI responses was analyzed by the examination of the subscale's skewness and kurtosis values (see Appendix C), using Stata's "sktest" routine for normality (see Appendix E), and Stata's "mvtest" routine for multivariate normality (see Appendix H). The values of skewness were between 0.46 and 0.64, and kurtosis ranged between 2.07 to 2.68. All the skewness and kurtosis values were within the acceptable values of ± 2.0 and ± 6.0 respectively (Decarlo, 1997; Kunnan, 1998). However, the Stata "sktest" routine for normality indicated that each question in the KSBS-PI subscale had a significant p-value ($p < .001$), thus suggesting the distribution was not normally distributed. Finally, the KSBS-PI subscale items were subjected to the Stata "mvtest" routine for multivariate normality. Significant *p*-values ($p < .001$) for all four of the multivariate normality tests rejected the null hypothesis of multivariate normality.

Descriptive statistics were used to investigate the existence of any ceiling or floor effects. The means of the KSBS-PI subscale's items ranged from 1.8 to 2.0 out of 4. The median for all items was 2.0. The median matched the mean for two of the items and it was within -.2 for the three remaining items. The KSBS-PI subscale items mean, median and skewness values (0.46 to 0.81) indicate a positive skew, but were not necessarily indicative of a floor effect (Allen, 2017). This assessment is supported by the results of the histograms generated for each of the KSBS-PI subscale items (Appendix I).

Volunteer Satisfaction Index- Organizational Support (VSI-OS): The VSI-OS subscale used a 5-point Likert-type response scale (1 = very dissatisfied to 5 = very satisfied). The normality of the distribution of the VSI-OS responses was analyzed by the examination of the subscale's skewness and kurtosis values (see Appendix C), utilization of Stata's "sktest" routine for normality (see Appendix E), and Stata's "mvtest" routine for multivariate normality (see Appendix J). The values of skewness were between -1.40 and -0.60, and kurtosis ranged between 2.82 to 5.84. All the skewness and kurtosis values were within the acceptable values of ± 2.0 and ± 6.0 respectively (Decarlo, 1997; Kunnan, 1998). However, the Stata "sktest" routine for normality indicated that four of the questions in the VSI-OS subscale had a significant *p*-value ($p < .001$), and one question had significant p-value ($p = .004$), thus suggesting the distribution was not normally distributed. Finally, the VSI-OS subscale items were subjected to the Stata "mvtest" routine for multivariate normality. Significant p-values ($p < .001$) for all four of the multivariate normality tests rejected the null hypothesis of multivariate normality.

Descriptive statistics were used to investigate the existence of any ceiling or floor effects. The means of the VSI-OS subscale's items ranged from 4.0 to 4.3 out of 5. The median values for all the items were 4.0, near the top of the scale. The VSI-OS subscale items' mean, median and skewness values (-1.40 and -0.60) indicate a negative skew, but were not necessarily indicative of a ceiling effect (Allen, 2017). This assessment is supported by the results of the histograms generated for each of the VSI-OS subscale items (Appendix K).

Reliability

Two methods were used to investigate the reliability of the subscales to include: internal consistency (i.e., Cronbach's alpha) and item-test [item-total] correlation correlations.

Internal Consistency

For each of the subscales, Cronbach's alpha was calculated to assess the internal consistency of the items (Field, 2013). The Cronbach's alpha scores for each subscale can be found in Table 8. The instrument reliability standards for Cronbach's alpha used to judge the quality of the three scales were: 0.80-1.00 (exemplary reliability), 0.70-0.79 (extensive reliability), 0.60-0.69 (moderate reliability) and < 0.60 (minimal reliability) (Khasawneh et al., 2012). These standards suggest the three subscales are suitable measures of a tutor's values, knowledge sharing, and organizational support.

Table 8

Cronbach's Alpha Scores: Core & Validation Scales

Core Scales	Number of Questions	Alpha Score
Volunteer Functions Inventory - Values (VFI-V)	5	0.82
Knowledge Sharing Behavior Scale - Personal Interactions (KSBS-PI)	5	0.94
Volunteer Satisfaction Index - Organizational Support (VSI-OS)	5	0.92
Validation Scales		
Organizational Citizenship Behavior (OCB)	5	0.86
Behavioral Intention Formation Knowledge Sharing (BIFKS)	5	0.85
Organizational Commitment (OC)	8	0.85

Note: N=228

Item-test [item-total] Correlations. The item-test [item-total] correlation analysis was conducted on each subscale.

Volunteer Functions Inventory - Values (VFI-Values). The results of the item-test [item-total] correlation analysis can be viewed in Table 9. All the correlations were strong, ranging from 0.61- 0.85 (Acock, 2018). However, item q9 (i.e., I am concerned about those less fortunate than myself), which had the lowest item-test correlation of 0.61, could prove problematic. The item-test analysis indicates that dropping this from the subscale will raise the alpha level from 0.82 to 0.88. However, Acock (2018) warns that dropping an item to raise the overall alpha level is often based upon chance.

Knowledge Sharing Behavior Scale- Personal Interactions (KSBS-PI). The results of the item-test [item-total] correlation analysis can be viewed in Table 10. All of the correlations were strong, ranging from 0.86- 0.92 (Acock, 2018). Additionally, dropping any of the items would not raise the overall alpha score.

Table 9

Item-Test Correlations and Cronbach's Alpha: Volunteer Functions Inventory-Values

Item	Item-Test Correlation	Alpha Drop[a]
q9. I am concerned about those less fortunate than myself	0.61	0.88
q10. I am genuinely concerned about the adults with low literacy skills I am serving	0.82	0.75
q11. I feel compassion toward people with low literacy skills	0.85	0.74
q12. I feel it is important to help adults learn to read	0.82	0.75
q13. I can do something for adult literacy that is important to me	0.77	0.77
	Test Scale	0.82

Note: N= 228

[a] This is the alpha level if the item is dropped.

Table 10

Item-Test Correlations and Cronbach's Alpha: Knowledge Sharing Behavior Scale- Personal Interactions

Item	Item-Test Correlation	Alpha Drop[a]
q14. I support less-experienced tutors with time from my personal schedule	0.86	0.94
q15. I spend time in personal conversation with other tutors to help them with their volunteer-tutoring related problems	0.92	0.92
q16. I keep other tutors updated with important tutoring related information through personal conversation	0.91	0.93
q17. I share passion and excitement on some specific subjects with other tutors through personal conversations	0.91	0.93
q18. I share experiences that may help other tutors avoid risks and trouble through personal conversation	0.92	0.93
	Test Scale	0.94

Note: N= 228
[a] This is the alpha level if the item is dropped.

Volunteer Satisfaction Index – Organizational Support (VSI-OS). The results of the item-test [item-total] correlation analysis can be viewed in Table 11. All of the correlations were strong, ranging from 0.86- 0.92 (Acock, 2018). Additionally, dropping any of the items would not raise the overall alpha score.

Validity

Tests of Matrices. Before a researcher begins to conduct an exploratory factor analysis, the correlations among the items should be analyzed. This analysis is to determine whether the level of correlations is significant enough to justify conducting factor analysis (Pett et al., 2003a). Two means to conduct this analysis are the Kaiser-Meyer-Olkin test and the Bartlett's test of sphericity. The Kaiser-Meyer-Olkin was .86, Bartlett's test of sphericity chi-square was significant (χ^2 (253) = 2784.760, $p < .001$). These results verified the sampling adequacy for performing an exploratory factor analysis (Field, 2013).

Table 11

Item-Test Correlations and Cronbach's Alpha: Volunteer Satisfaction Index - Organizational Support

Item	Item-Test Correlation	Alpha[a]
q19. The availability of getting tutoring help when I need it	0.86	0.90
q20. The support network that is in place for me when I have tutoring-related problems	0.91	0.89
q21. The way in which the literacy organization provides me with tutor quality feedback	0.84	0.92
q22. The flow of communication coming to me from paid literacy organizational staff	0.89	0.90
q23. How often the literacy organization acknowledges the work I do	0.86	0.91
	Test Scale	0.92

Note: N= 228
[a] This is the alpha level if the item is dropped.

Evidence Based on Internal Structure. Evidence based on internal structure was generated using exploratory factor analysis. The items q9 – q23 were subject to a principal component analysis (PCA). To simplify the interpretation of the factor loading table, all loadings less than .33 were displayed as blanks in the factor column.

The PCA resulted in the identification of three factors with eigenvalues greater than 1. These factors accounted for approximately 74% of the variance (see Table 12). This three-factor model structure was also supported by the results from the scree plot (see Figure 4).

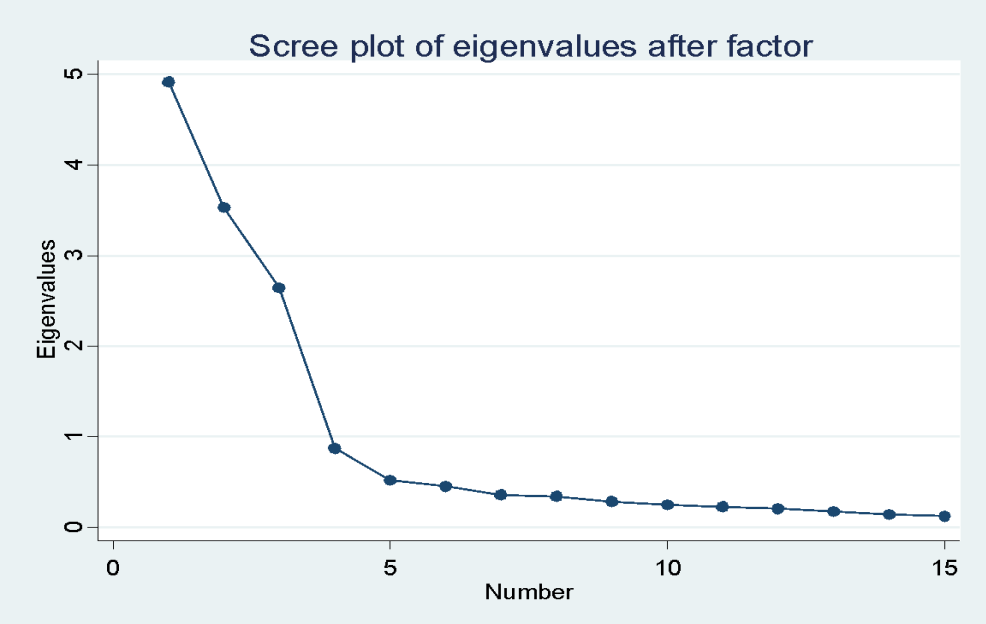
Table 12

Factor Analysis: Method: Principal-Component Factors, Retained Factors (3), Unrotated, Blanks (.33)

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	**4.916**	1.388	0.328	0.328
Factor 2	**3.528**	0.888	0.235	0.563
Factor 3	**2.639**	1.770	0.176	0.739
Factor 4	0.870	0.350	0.058	0.797
Factor 5	0.520	0.073	0.035	0.832
Factor 6	0.447	0.091	0.030	0.861
Factor 7	0.356	0.019	0.024	0.885
Factor 8	0.337	0.054	0.022	0.908
Factor 9	0.283	0.039	0.019	0.926
Factor 10	0.245	0.021	0.016	0.943
Factor 11	0.223	0.020	0.015	0.958
Factor 12	0.203	0.028	0.014	0.971
Factor 13	0.175	0.036	0.012	0.983
Factor 14	0.139	0.021	0.009	0.992
Factor 15	0.118	.	0.008	1.000

Note: Bolded numbers indicate the highest eigenvalues which are ≥ 1.
Observations = 227, Number of Parameters = 42,
LR test: independent vs. saturated: chi2(105) = 2545.45 Prob>chi2 = 0.0000

Figure 4.
Eigenvalues from 15-item Factor Analysis



The results from the factor loadings, i.e., pattern matrix (see Table 13) indicated that seven items loaded onto the first factor, three items loaded onto the second factor, and five items loaded onto the third factor. This pattern confirmed that all 15 items loaded only onto one factor each.

Table 13

Unrotated Factor Loadings (Pattern Matrix) and Unique Variances

Variable	Factor 1	Factor 2	Factor 3	Uniqueness
q9			**0.370**	0.772
q10	0.397		**0.671**	0.318
q11	0.428	0.364	**0.683**	0.218
q12	0.418	0.385	**0.683**	0.212
q13	0.497		**0.569**	0.332
q14	**0.618**	-0.592		0.264
q15	0.634	**-0.674**		0.142
q16	0.642	**-0.650**		0.166
q17	**0.669**	-0.611		0.178
q18	0.641	**-0.660**		0.154
q19	**0.590**	0.505	-0.413	0.226
q20	**0.670**	0.478	-0.414	0.152
q21	**0.658**	0.372	-0.346	0.308
q22	**0.632**	0.481	-0.401	0.208
q23	**0.640**	0.394	-0.412	0.265

Note: Bolded numbers indicate the highest factor loading for each item.
blanks represent abs(loading)<.33

Orthogonal Rotation (Also Called Varimax). Since more than one factor was identified, the next step in the analysis was to rotate the initial solution to see if the rotated solution is easier to interpret. The first rotation was the orthogonal rotation. This rotation forces the factors to be uncorrelated with each other (Acock, 2018).

The results of the Orthogonal Rotation factor rotation indicated that each of the items has a loading of 0.40 or higher on only one factor (Table 14). However, question 9 had a loading of 0.474 on factor 3, almost half the loading as compared to all the other factor loadings. Question 9

also has a very high uniqueness value[26] (0.772). This uniqueness valued indicates the amount of variance not explained by the variable was 77% (Acock, 2018).

Table 14

Orthogonal Rotation (Varimax): Rotated Factor Loadings (Pattern Matrix) and Unique Variances

Variable	Factor 1	Factor 2	Factor 3	Uniqueness
q9			0.474	0.772
q10			0.822	0.318
q11			0.879	0.218
q12			0.882	0.212
q13			0.791	0.332
q14	0.853			0.264
q15	0.925			0.142
q16	0.911			0.166
q17	0.900			0.178
q18	0.917			0.154
q19		0.876		0.226
q20		0.913		0.152
q21		0.812		0.308
q22		0.884		0.208
q23		0.848		0.265

Note: blanks represent abs (loading)<.33

Nevertheless, the fact that all the questions only loaded onto one of the three factors indicates a simple structure, i.e., each item has high loadings only onto one factor (Watkins, 2022). This simple structure provides evidence that each factor has a strong relationship with a particular group of variables, thus facilitating the naming of the factor and determining what the factor represents (Stapleton et al., 2019). The simple structure also provides the initial evidence of the instrument's construct validity. The structure, and factor labeling, of the subscales used to operationalize the community of practice theoretical framework is reflected in Appendix L

[26] Ideally, the "uniqueness for each item should approach zero" (Acock, 2018, p 409).

Oblique Rotation (Also Called promax). The oblique rotation allows the factors to be correlated.[27] This rotation enables the determination of the correlations between the factors using the Stata "estat common" routine. The results of the oblique rotation are reflected in Table 15. This table reflects factor loadings very similar to the orthogonal rotation, thus providing evidence for a stable factor structure (Kubota et al., 2018).

The loadings reported in Table 14 reflect a simple structure with all the loadings ≥ 0.40. Additionally, question nine has a loading of 0.478 on factor 3, with a uniqueness value of 0.772. This uniqueness valued indicates the amount of variance not explained by the variable was 77%. This factor attribute for question nine, combined with the fact that dropping the item from the Volunteer Functions Inventory-Values subscale would raise the subscale's alpha score from 0.82 to 0.88, provides strong evidence for dropping question nine from the final questionnaire.

Table 15

Oblique Rotation (Promax): Rotated Factor Loadings (Pattern Matrix) and Unique Variances

Variable	Factor 1	Factor 2	Factor 3	Uniqueness
q9			0.478	0.772
q10			0.834	0.318
q11			0.888	0.218
q12			0.891	0.212
q13			0.788	0.332
q14	0.855			0.264
q15	0.931			0.142
q16	0.915			0.166
q17	0.900			0.178
q18	0.922			0.154
q19		0.889		0.226
q20		0.920		0.152
q21		0.810		0.308
q22		0.892		0.208
q23		0.855		0.265

Note: blanks represent abs(loading) <.33

[27] See Table 16, Correlation Matrix of the Promax (3) Rotated Common Factors

The next step in the analysis of the oblique rotation was to investigate the correlations of the factors. This analysis was accomplished using the Stata "estat common" routine (see Table 16). The results from this analysis confirmed the factors were correlated. However, the inter-factor correlations of 0.10 to 0.22 were low enough to indicate no threat to discriminant validity (Watkins, 2022). The inter-factor correlation results were confirmed by the generation of factor scores using the Stata "predict" routine. Once the factor scores were generated, their correlations were analyzed (see Table 17). The results of the factor correlations and the factor score correlations were identical.

Table 16

Correlation Matrix of the Promax (3) Rotated Common Factors

Factors	Factor 1	Factor 2	Factor 3
Factor 1 (KSBS-PI)	—		
Factor 2 (VSI-OS)	0.15	—	
Factor 3 (VFI-V)	0.10	0.22	—

Table 17

Correlation Matrix of Factor Scores

Factor Scores	Factor 1	Factor 2	Factor 3
Factor 1 (KSBS-PI)	—		
Factor 2 (VSI-OS)	0.15	—	
Factor 3 (VFI-V)	0.10	0.22	—

Evidence Based on Relationships to Other Variables. Validity evidence based upon relationships to other variables were generated by using a two-step process. First, alpha scale scores were generated for each of the scales that were included in the questionnaire for validity evidence (i.e., OC, OCB, and BIFKS) (see Appendix M). As discussed in chapter three, the

existence of these three subscales date back to 1979, 1983, and 2005 respectively. Each subscale has well established reliability and validity evidence.

Next, a correlation analysis was conducted using the alpha scale scores and the factor scores (see Table 18). The heuristic used to interpret these correlations is the following: ± 0.1 small correlation, ± 0.3 medium correlation, and ± 0.5 strong correlation (Field, 2013, p. 267).

Table 18

Correlation Matrix for Factor and Alpha Scores

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) KSBS-PI	—					
(2) VSI-OS	0.15	—				
(3) VFI-V	0.11	0.23	—			
(4) OCB	0.83	0.20	0.11	—		
(5) BIFKS	0.52	0.27	0.20	0.45	—	
(6) OC	0.26	0.48	0.26	0.24	0.46	—

Note: Subscale Descriptions:

(1) Knowledge Sharing Behavior Scale- Personal Interactions (KSBS-PI) These questions inquire about the frequency of tutor's knowledge sharing with other tutors.

(2) Volunteer Satisfaction Index – Organizational Support (VSI-OS) These statements inquire about the tutor's level of satisfaction with the support they receive from their literacy organization.

(3) Volunteer Functions Inventory-Values (VFI-V) These statements inquire about the values that motivate people to volunteer as an adult literacy tutor.

(4) Organizational Citizenship Behavior - Altruism (OCB- Altruism): As defined by the researchers, "OCB represents individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, that in the aggregate promotes the effective functioning of the organization."

(5) Behavioral Intention Formation Knowledge Sharing (BIFKS): These questions inquire about attitudes toward knowledge sharing.

(6) Organizational Commitment (OC) The items on the OC scale are designed to assess a respondent's organizational loyalty, desire to stay with the organization, belief in the organization's goals, and willingness to do what is needed to ensure the organization is successful.

The validity evidence based on relationships to other variables was categorized into three groups: convergent, discriminant, and concurrent evidence. The evidence for convergent validity was obtained by examining the correlations between the VSI-OS and the VFI-V subscales. The correlation between these two subscales was 0.23, a low correlation. This correlation level indicates these subscales measure similar but distinct constructs.

Discriminant evidence was provided by the fact there were low (i.e., 0.15 to 0.23) correlations between the three primary subscales (KSBS, VSI, VFI). These low correlations support the argument that each of these subscales represents a different and distinct component of the community of practice construct.

Evidence for concurrent validity was provided by the correlations between the knowledge sharing subscales, i.e., Knowledge Sharing Behavior Scale- Personal Interactions (KSBS-PI) and the Behavior Intention Formation Knowledge Sharing (BIFKS) subscale. The correlation between these two subscales was 0.52, indicating a strong correlation.

Finally, the analysis of the correlations between subscale scores identified another significant relationship. Very strong evidence for concurrent validity was the correlation between the Knowledge Sharing Behavior Scale-Personal Interactions (KSBS-PI) and the Organizational Citizenship Behavior (OCB) subscales. The correlation of the scores between these two subscales was 0.83. This very strong correlation was not expected. However, a close examination of the questions associated with these subscales indicated they could represent different aspects of the knowledge sharing construct. For example, three of the OCB questions begin with the words “I help.” These words could be interpreted by respondents as meaning “I help” by sharing knowledge. Support for this interpretation is provided by the strong correlation (r = 0.45)

relationship between OCB and the Behavioral Intention Formation Knowledge Sharing subscales, the other knowledge sharing subscale that was included in the questionnaire.

Research Question Summary

The development and validation of the Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS) was guided by four research questions. These questions pertained to the instrument's internal consistency estimate of reliability, content-related evidence for validity, internal structure validity evidence, and evidence based upon relationships to other variables. In the following paragraphs, a summary of the findings is provided.

Internal Consistency Estimate of Reliability

In response to the question "What is the internal consistency estimate of reliability," the research results indicate the VALTPFS reflected an exemplary reliability with the Cronbach's alpha scores ranging from 0.82 to 0.94 for the three subscales. Additionally, when item q9 is dropped, the Cronbach's alpha scores ranged from 0.88 to 0.94.

Content-Related Evidence for Validity

The second research question inquired "What is the content-related evidence for validity of the VALTPF scale?" The detailed evidence to answer this question was provided in chapter two, the review of the literature. Two of the four studies discussed in chapter two pertained to the generation of content-related evidence for validity. One study gathered, summarized, and integrated the empirical research on one-on-one volunteer adult literacy tutoring programs that support U.S.-born adults with low English language literacy skills. A search of three electronic databases resulted in the identification of 1,187 articles, which were reduced to six studies based

on the inclusion criteria. These studies provided several important findings with respect to the recruitment, retention, and development of one-on-one volunteer adult literacy tutors.

The second relevant literature review study pertained to the identification and analysis of existing instruments that could inform the development of the VALTPFS and thus operationalize the CoP concept. This review of the literature resulted in the identification of five survey instruments: the Perceptions of Program Quality Support Questionnaire (Udouj et al., 2017), the Volunteer Functions Inventory (Clary et al., 1998), the Volunteer Satisfaction Index (Galindo-Kuhn & Guzley, 2002), the Knowledge Sharing Behavior Scale (Yi, 2009), and the Belongingness Assessment Tool (Daniels et al., 2020). All these instruments were examined to determine if they contained a subscale or items that could inform the development of the VALTPFS. The final analysis resulted in the selection of six subscales that contained 42 questions. Three of the subscales were selected to operationalize the CoP framework. The remaining three subscales were used to generate validity evidence based upon relationships to other variables.

Validity Evidence Based Upon Internal Structure. Exploratory factor analysis was used to generate the empirical evidence to answer the research question "What is the internal structure validity evidence of the VALTPF scale?" The factor analysis resulted in the identification of three factors with eigenvalues greater than 1. These factors accounted for approximately 74% of the variance. The factors were rotated using the orthogonal rotation (also called varimax) and oblique rotation (also called promax). The results indicated a simple structure with all the items loading on only one factor. This simple structure provides evidence of the instrument's construct validity.

Evidence Based on Relationships to Other Variables. The last research question inquired about construct validity evidence based upon relationships to other variables. Validity evidence based upon a convergent relationship was provided by the high-low to moderate correlation between the VSI-OS and the VFI-V subscales. Validity evidence based upon a discriminant relationship was provided by the low correlations between the KSBS, VSI-OS and the VFI-V subscales. Finally, validity evidence based upon a concurrent relationship was provided by two different subscale pairings. The first pairing providing evidence was the strong correlation between the KSBS-PI and the BIFKS subscales. The second pairing providing concurrent relationship evidence was the very high correlation between the KSBS-PI and OCB subscales.

Final Questionnaire Design Summary

The final questionnaire contains 40 items, with the core questionnaire consisting of 14 items (see Table 19). A complete copy of the questionnaire can be found in Appendix N. For the core instrument's subscales, the Cronbach's alpha scores ranged from 0.88 to 0.94, thus providing evidence for exemplary reliability. Exploratory factor analysis was used to generate internal structure validity evidence. The results for the promax rotation indicated a simple structure with all the items loading on only one of three factors accounting for 74 percent of the variance. This simple structure provides evidence of the instrument's construct validity. The promax rotation assumes the factors are correlated. This assumption aligns with the Community of Practice (CoP) concept which acknowledges that aspects of the CoP's three core elements (i.e., domain, practice, and community) are related. Additional evidence for construct validity was obtained from relationships to other variables.

This exploratory study has generated reliability and validity evidence for the questionnaire. However, more work needs to be accomplished to further develop evidence for the instrument's construct validity. This additional work is discussed in detail in the following chapter.

Table 19

Final Questionnaire Item Summary

Core Instrument Subscales	# Items
Volunteer Functions Inventory-Values	4
Knowledge Sharing Behavior Scale- Personal Interactions	5
Volunteer Satisfaction Index- Organizational Support	5
Validity Evidence Subscales	
Organizational Citizenship Behavior	5
Behavioral Intention Formation Knowledge Sharing	5
Organizational Commitment	8
Demographic Questions	8
Total:	40

Chapter V – Discussion

This chapter provides a summary of the main findings of this study. It begins with a discussion about the limited research on volunteer adult literacy tutors and the need to consider volunteer management frameworks other than those based upon the human resource management model. Next, it reviews the process for the development and validation of the Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS) using the community of practice (CoP) framework. This discussion is followed by a summary of the psychometric properties, key research findings, and the interpretation of the findings for the three subscales that were used to operationalize the CoP concept: the Volunteer Functions Inventory-Values (VFI-V) subscale, the Knowledge Sharing Behavior Scale-Personal Interactions (KSBS-PI) subscale, and the Volunteer Satisfaction Index–Organizational Support (VSI-OS) subscale. This narrative is followed by sections that address the study's limitations, implications for practice, and implications for future research. The chapter ends with a short conclusion that emphasizes the significance of this research project.

The findings from a systematic review of the literature on volunteer tutors discussed in detail in chapter two revealed that very little research has been focused on this type of volunteer, i.e., volunteer one-on-one adult literacy tutors, in the past 20 years. Additionally, Studer and Schnurbein (2013) identified several researchers who argued that the human resource management (HRM) model for volunteer management was not comprehensive enough to address all volunteer management issues. They argued there is a critical need to explore other types of volunteer management approaches or frameworks, e.g., Community of Practice framework. Based on this literature , an exploratory study was initiated to develop and validate a Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS). This research was motivated by

two goals. First, to expand the body of research on volunteer adult literacy tutors. Second, to explore the feasibility of using a volunteer management framework, other than one based upon the HRM model, to develop a volunteer tutor questionnaire.

The VALTPFS is a self-report questionnaire that measures the perceptions of one-on-one adult literacy tutors who volunteer to provide literacy instruction to tutees who are U.S. born native English language speaking adults (age 18+). This instrument is based upon the Community of Practice (CoP) framework. A CoP is defined as a group of people who are engaged in a practice, are passionate about it, learn from their interactions, and apply that learning to improve their practice on an ongoing basis (Andrew et al., 2008; Wenger, 2011).

The CoP framework has three crucial elements: the domain, the practice, and the community. When the domain, practice, and community function well together, they constitute a CoP that supports a social structure capable of, and responsible for, the development and sharing of knowledge (Wenger et al., 2002). When compared to the core elements of a volunteer tutor management program (i.e., recruitment, development, and retention), it was determined there was a critical alignment between CoP elements and volunteer management functions. The recruitment function aligned with the characteristics of the CoP element domain. The development function aligned with the characteristics of the CoP element practice. The retention function aligned with the characteristics of the CoP element community. This alignment of elements and functions was the basis for this exploratory research to investigate the use of a CoP framework for the management of volunteer adult literacy tutors. This framework offers the potential for CBLOs to cultivate an environment where tutors work collectively to self-manage their practice—a capability the HRM model has not achieved to date. This semi-autonomy has the potential to achieve the following outcomes. First, it could enable volunteer tutor program

managers to improve adult student outcomes. Second, it has the potential to improve the volunteer tutor experience and thus improve the quality of tutoring services. Finally, the CoP framework has the potential to increase the number of tutors without significantly increasing program oversight requirements.

Based upon the functional alignments and benefits cited above, the CoP framework was selected to guide a review of the literature to identify instruments/subscales, with established psychometric credentials, to develop the VALTPFS. The strategic intent underlying this approach was to develop an instrument that could provide actionable information to inform programmatic decisions about the recruitment, development, and retention of volunteer tutors in a manner that facilitates the establishment of a volunteer tutor CoP. The instrument development process (i.e., a review of the literature, followed by pretesting, expert reviews, and a pilot study) resulted in the selection of three subscales to operationalize the VALTPFS. The three subscales were the Volunteer Functions Inventory-Values subscale, the Knowledge Sharing Behavior Scale-Personal Interactions subscale, and the Volunteer Satisfaction Index- Organizational Support subscale. The final survey questionnaire was completed by 228 tutors and the responses were examined using descriptive statistics and Stata tests.

Volunteer Functions Inventory-Values subscales

The Volunteer Functions Inventory-Values (VFI-V) subscale items inquire about the values that motivate people to volunteer as an adult literacy tutor. As such, the VFI-V subscale is intended to function as a proxy for understanding tutor recruitment. The VFI-V subscale used a 5-point Likert-type response scale (1 = strongly disagree to 5 = strongly agree).

The analysis of the responses for the VFI-V subscale items provided initial evidence for the reliability and validity of the items associated with this subscale. The subscale had a

Cronbach's alpha score of 0.82, indicating an exemplary reliability if item 9 (i.e., I am concerned about those less fortunate than myself) was dropped, the alpha level would increase to 0.88. The EFA provided initial evidence for construct validity based upon internal structure. It indicated the items on the VFI-V subscales reflected a simple structure with items loading on the appropriate dimensional construct. All the loadings were ≥ 0.80, thus indicating very good loadings. [28]

The only feature of the VFI-V subscale which could be a possible concern was the fact that the mean, median, and skewness values indicated a ceiling effect. Nevertheless, this ceiling effect is not necessarily undesirable or indicative of a poorly designed subscale. The profile of the survey respondents indicated that 22% were in the 55-64 age group and 64% were in the above 64 age group. This age profile nearly corresponds with the tutors age profile of ProLiteracy, a national umbrella adult literacy organization. ProLiteracy states 48% of their volunteer literacy tutors are above the age of 60 (Smith, 2021b). The volunteer literature asserts that the most frequently cited motivations to volunteer were related to altruism (Ferreira et al., 2009). The literature also states that for older volunteers (age 56-76 years old), the key motivations for volunteering are to make a contribution to the community (Cook & Sladowski, 2013) and to help others- especially those in need (Tang, 2010). These motivations are reflected in the items that constitute the VFI-V subscale. Therefore, it is reasonable to argue that the ceiling effect for this subscale simply indicates the respondent's intense (but accurate) altruistic motivations.

[28] This minimum loading value does not include item nine, which will be dropped from the final scale. Item nine had a factor loading of 0.47 and a uniqueness value of 0.77.

Knowledge Sharing Behavior Scale-Personal Interactions (KSBS-PI)

The Knowledge Sharing Behavior Scale-Personal Interactions (KSBS-PI) subscale consists of five items that inquire about the frequency of a tutor's knowledge sharing with other tutors. The KSBS-PI subscale used a 4-point Likert-type response scale (1 = never to 4 = often). The analysis of the responses for the KSBS-PI subscale items provided initial evidence for the reliability and validity of the items associated with this subscale. The subscale had a Cronbach's alpha score of 0.94, indicating an exemplary reliability. The EFA provided initial evidence for construct validity based upon internal structure. It revealed the items on the KSBS-PI subscale indicated a simple structure with items loading on the appropriate dimensional construct. All the loadings were ≥ 0.85, thus indicating very good loadings.

The KSBS-PI subscale appears to have good initial psychometric credentials. This statement is made with the understanding that the measurement of knowledge sharing is a nascent area of research (Chalkiti, 2012; Yi, 2009). As such, there is a recognized need for the research community to investigate the psychometric credentials of any instrument at different points in time and with different population groups (Cizek, 2020). With this understanding, the interpretation of the KSBS-PI item scores indicate the need to improve the organizational culture and environment to enhance the level of knowledge sharing among volunteer adult literacy tutors. This assessment is based upon the fact that the KSBS-PI subscale items' mean, median and skewness values indicate a positive skew—meaning the scores were concentrated near the low end of the 4-point Likert-type response scale (1 = never to 4 = often).

The need to improve the scores on the KSBS-PI subscale items is based upon two reasons. First, the purpose of the CoP is to develop the capabilities of its members by creating, expanding, and exchanging knowledge (Wenger et al., 2002). Second, some researchers contend

that knowledge (i.e., its creation, development, sharing) is the most important precursor for continuous organizational innovation and success (Asrar-ul-Haq & Anwar, 2016). Therefore, improving the amount and quality of knowledge sharing between and among adult volunteer tutors is critical for the cultivation of a tutor CoP and organizational success. In support of this premise, the research literature provides some insights into how this can be achieved.

Kubo et al. (2001) determined that the establishment of personal networks and the cultivation of high-quality personal relationships correspond to increased knowledge sharing activities. These networks have been credited as sources for peer support with respect to a person obtaining advice, obtaining access to information about training, and the stimulation of a desire to acquire education and training to improve performance (Hill & Stevens, 2011).

Mentoring is one means to cultivate personal networks and transfer knowledge (Cross et al., 2006). Volunteer tutors who mentor other volunteer tutors are in a key position to facilitate the sharing of knowledge by emphasizing to their mentee's good tutoring practices or suggesting alternative tutoring practices that improve the mentee's student's literacy skills (Sandlin & St. Clair, 2005).[29] The use of experienced tutors to serve as mentors to new tutors has also been credited with enabling volunteer program managers to personalize tutor training for newcomers based upon the feedback received from mentors about their mentee's specific strengths and weaknesses (Belzer, 2013). Finally, these mentoring relationships have the potential to further facilitate the sharing of knowledge when new volunteers mature from being followers to being collaborators and leaders (Lockett & Boyd, 2012).

[29] A mentee is defined as a person who is advised, trained, or counseled by a mentor (Merriam-Webster, n.d.)

Volunteer Satisfaction Index–Organizational Support (VSI-OS).

The Volunteer Satisfaction Index–Organizational Support (VSI-OS) subscale consists of five items that inquire about the tutor's level of satisfaction with the support they receive from their literacy organization. The VSI-OS subscale used a 5-point Likert-type response scale (1 = very dissatisfied to 5 = very satisfied). The VSI-OS subscale is intended to function as a proxy for understanding tutor retention.

The analysis of the responses for the VSI-OS subscale items provided initial evidence for the reliability and validity of the items associated with this subscale. The subscale had a Cronbach's alpha score of 0.92, indicating an exemplary reliability. The EFA provided initial evidence for construct validity based upon internal structure. It indicated the items on the VSI-OS subscale revealed a simple structure with items loading on the appropriate dimensional construct. All the loadings were ≥ 0.81, thus indicating very good loadings.

The VSI-OS subscale items' mean, median and skewness values indicate a negative skew— meaning the scores were concentrated near the high end of the 5-point Likert-type response scale (1 = very dissatisfied to 5 = very satisfied). For all five subscale items, the preponderance of responses was either satisfied (4 out of 5) or very satisfied (5 out of 5). These scores reflect a very high level of satisfaction for the organizational supports provided to the volunteer tutors. As stated earlier, the researchers often use volunteer satisfaction as a proxy measure to understand retention (ICF, 2021). With this understanding, the VSI-OS item scores appear to conform to a national-level profile of volunteer adult literacy tutors.

Based upon the annual statistical reports produced by ProLiteracy, the average tutor (instructor) retention rate was 84.5% for the reporting periods from 2016 to 2020 (Smith, 2021a,

2021b). [30] This is an above-normal retention rate, as research suggests the volunteer retention rate of the baby boomer generation is 68% (Foster-Bey, 2007) and the average retention rate for all volunteer organizations in the United States is 65% (AmeriCorps, 2021).

Limitations

Global Pandemic (COVID-19)

The global pandemic (COVID-19) had a significant impact on the availability of volunteer adult literacy tutors to participate in this study. As stated in Chapter Four, due to COVID-19, the original tutor sampling frame for this study was reduced from a maximum estimate of 1,500 tutors to a firm count of 262 tutors. This reduction resulted in the use of EL tutors for the pilot study. Although EL tutors and BL tutors have similar characteristics, the use of BL tutors for the pilot study would have been the preferred sampling frame. Additionally, the sampling frame for the full study was 692 tutors. This was approximately half the amount estimated for the original sampling frame. This smaller sampling frame produced 228 completed questionnaires, reflecting a 33% response rate. Although this rate is commendable, the original estimate of 300+ responses would have been preferred for the factor analysis.

Literature Review

In chapter two, the systematic review of the literature on volunteer one-on-one adult literacy tutors had two key limitations. The first limitation pertained to the review's search criteria. The second limitation pertained to a limitation associated with evaluation studies. Both limitations will be discussed in detail in the following paragraphs.

[30] ProLiteracy Retention Formula: Total number of tutors/instructors at the beginning of the fiscal year (A) - the number of tutors/instructors who left (B) = the number of tutors/instructors remaining (C). Result (C) divided by (A) = (D) the rate expressed as a decimal. Multiply (D) by 100 for a percentage.

The systematic review was limited to articles that were published in peer reviewed journals. This restriction in scope precluded the incorporation of gray literature in the review. Gray literature typically includes conference proceedings, PhD dissertations, Master's theses, and reports (Xiao & Watson, 2019). As such, it is feasible that some studies meeting the eligibility criteria (except being a peer reviewed publication) were not included in the review.

Second, even if the systematic review did include gray literature, it may not have been able to identify a key body of literature relevant to this study. For example, program evaluation is a research area that is relevant to the investigation of the efficacy of adult literacy programs. However, most evaluation research is used internally by the organizations that sponsor or conduct the research. This internal use typically means the study findings are not published in the public domain, and thus not normally available for research purposes.

Sampling Method

The sampling method for this study was a convenience sample. As such, the sampling method may not result in a representative sample of the national volunteer adult literacy tutor population.[31] The 228 survey respondents closely approximated the national population of Proliteracy volunteer adult basic literacy tutors on three key demographics, age, gender, and education levels. However, there was no means to determine the representativeness of the other five survey demographics (ethnicity, race, time tutoring, hours per week tutoring, and current main working situation). Therefore, this potential lack of representativeness might limit the external validity of the findings.

[31] There is no single national database that records the number of, and key demographics, for adult literacy tutors that volunteer for government funded organizations (federal-, state-, and local-governments) and privately funded community-based organizations (Program manager, National Reporting System for Adult Education, U.S. Department of Education, July 27, 2020)

Implications for Practice

Once the psychometric properties of the Volunteer Adult Literacy Tutor Perception Feedback (VALTPF) scale are well-established, practitioners will be able to utilize the instrument to cultivate a volunteer tutor CoP. The VALTPF scale will enable the leadership of community-based literacy organizations (CBLOs) to obtain feedback from their tutors about the values that motivate them to volunteer, their level of knowledge sharing, and their level of satisfaction with the organizational supports provided by the CBLO. This feedback, along with the knowledge from follow-up analysis with the tutors to investigate the "why" behind the scores, should enable the CBLO to systematically cultivate an environment that facilitates the creation of a volunteer adult literacy tutor CoP. An analysis of the finding for the knowledge sharing item scores will be used to explore how the adult basic literacy community can make use of the research findings.

This study identified the need to cultivate the practice of knowledge sharing among volunteer literacy tutors. If this is to occur, the leadership of CBLOs must reframe their thinking about knowledge sharing among tutors. This reframing must be followed by leadership taking explicit steps to encourage tutors to share their knowledge with each other. For example, during the expert review process, one CBLO executive director (ED) stated "*I really liked this category [knowledge sharing] of questions. It made me think about how much more we can do, as an adult literacy organization, to create opportunities for knowledge sharing among our tutors* [emphasis added]" (CBLO ED, personal communication, September 30, 2021). The knowledge sharing questions on the VALTPF stimulated the thinking needed to reframe the program management of this ED's volunteer tutors. This reframing means EDs must look beyond the activities typically associated with the HRM-based model of tutor performance assurance, i.e.,

orientation, training, monitoring, and evaluation (Studer & Schnurbein, 2013). The EDs must conscientiously adopt the CoP framework to supplement the tutor management practices that are based upon the HRM model. This means working with the organization's tutors to identify and cultivate opportunities for knowledge sharing among the tutors.

Implications for Future Research

Confirmatory Factor Analysis

The purpose of this exploratory study is to develop and validate a Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS). As such, exploratory factor analysis (EFA) was used to initially define the internal structure for a set of items that could form a scale. EFA was used to: (1) analyze responses to identify their underlying constructs; (2) identify which items were grouped together, and (3) investigate the dimensionality of the VALTPFS scale.

The literature states that follow-on phases of instrument development should use confirmatory factor analysis (CFA), with an independent sample, to generate evidence of construct validity (Johnson & Morgan, 2016b; Pett et al., 2003b; Rios & Wells, 2014). CFA provides construct validity evidence by confirming the number of underlying dimensions and their respective item factor loadings (Rios & Wells, 2014). It can also be used to assess the extent to which the hypothesized organization of a set of identified factors fits the data according to statistical criterion (DeVellis, 2017b; Pett et al., 2003b).

Social Desirability

Another area for future research is to investigate whether respondents answering the VALTPFS instrument are influenced by motivations other than what the researcher intended to measure. Phrased another way, respondents for a self-report questionnaire might provide answers

that represent themselves more favorably than in actual practice. Since the VALTPFS is a self-report questionnaire, it is vulnerable to social desirability (Nicolini et al., 2021).

Social desirability occurs when "subjects respond to self-report items in a manner that portrays them in an overly favorable light with respect to prevailing social norms and standards" (Nicolini et al., 2021, p. 2). When this occurs, item responses may be distorted since the respondents might not be answering the items for reasons assumed by the researcher (DeVellis, 2017b). Consequently, the VALTPFS instrument might be vulnerable to the effects of social desirability due to the nature of its subscales and the age of its respondents.

The VALTPFS consist of three subscales, two of which could be vulnerable to the effects of social desirability. The VFI-V subscale inquires about the values which motivate tutors to volunteer. The VSI-OS investigates tutors' perception of the quality of the supports provided by their host organization. Due to the nature of these subscales, there is a possibility that the respondents might feel pressure to provide responses that will put themselves, or the organization for which they volunteer, in a favorable light.

The second point of vulnerability to social desirability pertains to the age of the respondents. In this study, most of the respondents (64%) were above the age of 64. Some researchers argue that social desirability increases with age due to the fact older people desire to present a more positive image of themselves (Nicolini et al., 2021). Based upon these two points of vulnerability, investigating the impact of social desirability on the respondents to the VALTPFS should be an area for future research.

Practitioner – Researcher Collaboration

One critical area for future research will involve a close collaboration between practitioners and researchers. In particular, the practitioners, i.e., the leadership of community-based literacy organizations (CBLOs), will need to share with researchers how they are using the

results from the VALTPFS to inform their practice. This type of researcher-practitioner information sharing could occur under the auspices of pilot studies.

Pilot studies can be conducted to collect data using the VALTPFS. The survey results would be analyzed by researchers and provided to the leadership of the CBLOs. After a period, researchers could conduct follow-up interviews to inquire about "how" the survey results are being used to inform management actions associated with tutor recruitment, information sharing, and retention. These evidence-based management actions, and their associated metrics, could be analyzed and synthesized into a set of best practices. The best practices could be incorporated to a toolkit or users' guide.

Additionally, by using an online survey tool, the results from CBLO tutor surveys can be aggregated in a centralized data repository. For example, the online survey tool and data repository could be sponsored by a state- or national-level adult literacy organization. The centralized data repository would enable researchers to track longitudinal trends. It would also enable researchers to provide CBLOs feedback in a broader context. This context would be provided by comparisons between the CBLO's results with the consolidated results of CBLOs with similar tutor populations (e.g., English Language tutors, Basic Literacy tutors) and tutoring profiles (e.g., one-on-one tutors, small group tutors, or tutors supporting instructors in a classroom).

Conclusion

There are approximately 43 million adults with low-literacy skills (reading at or below a third-grade level) in the U.S. (Gurría, 2013; Mamedova & Pawlowsk, 2019). The largest group of service providers are federal and state funded adult literacy programs. These programs reach approximately 1.3 million adults annually (Keenan et al., 2020). At best, local governments,

community-based organizations, and volunteer literacy organizations provide literacy programs to an additional 500,000 adults each year (Bellso, 2018; Guy, 2005).

In addition to the funding and service shortfalls, low literacy service providers are also challenged to address the shortage of qualified adult literacy tutors. This shortage is problematic since volunteer tutors constitute up to 80% of the instructor staff for community-based literacy organizations (CBLOs) (Tamassia et al., 2007). Therefore, CBLO volunteer tutor program managers need a reliable and valid instrument to obtain specific and actionable feedback from their tutors about the quality of their tutor management and support programs.

The purpose of this exploratory study was to develop and validate a Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS). The VALTPFS is a self-report questionnaire that measures the perceptions of one-on-one adult literacy tutors about their values, knowledge sharing, and satisfaction (see Appendix N). This instrument is designed to assess the perceptions of adults who volunteer to provide basic literacy instruction to tutees who are U.S. born native English language speaking adults (age 18+).

Like most organizations that use volunteers, many CBLOs base the management of their volunteers on the human resource management (HRM) model. The HRM model takes a systems approach for the recruitment, orientation, development, and retention of volunteers (Hoye et al., 2008). However, several researchers argue that the HRM model for volunteer management is not comprehensive enough to address all volunteer management issues (Studer & Schnurbein, 2013). This research study explored the feasibility of using an alternative theoretical framework to guide the management of volunteer adult literacy tutors. The theoretical framework was the community of practice.

A Community of Practice (CoP) is defined as a group of people who are engaged in a practice, are passionate about it, learn from their interactions, and apply that learning to improve the practice on an ongoing basis (Andrew et al., 2008; Wenger, 2011). The CoP framework was used to identify subscales from instruments, with established psychometric credentials, to operationalize the CoP and thus develop the VALTPFS. The subscales include the Volunteer Functions Inventory-Values (VFI-V), the Knowledge Sharing Behavior Scale- Personal Interactions (KSBS-PI), and the Volunteer Satisfaction Index-Organizational Support (VSI-OS).

The development and validation of the VALTPFS instrument involved pretesting by 15 adult literacy practitioners, item analysis conducted by seven experts, a pilot study which resulted in 251 completed questionnaires, and a full study that generated in 228 completed questionnaires. These questionnaire development actions resulted in a 14-item survey with three subscales that inquired about a tutor's values, knowledge sharing, and satisfaction.

The three subscales have alpha reliabilities between 0.88 and 0.94. Exploratory Factor Analysis (EFA) was used to obtain construct validity evidence based upon internal structure. The EFA identified three factors accounting for 74 percent of the variance. The factors were rotated using the orthogonal rotation (also called varimax) and oblique rotation (also called promax). The results suggested a simple structure with all items loading on only one factor. This simple structure provides evidence of the instrument's construct validity.

Additionally, evidence for construct validity was obtained by examining relationships to other variables. This validity evidence was categorized into three groups: convergent, discriminant, and concurrent evidence. The evidence for convergent validity was obtained by examining the correlations between the VSI-OS and the VFI-V subscales. The correlation between these two subscales was 0.23, a high-low or moderate correlation. This correlation level indicates these subscales measure similar but distinct constructs.

Discriminant evidence was provided by the fact there were low (i.e., 0.15 to 0.23) correlations between the three primary subscales (KSBS, VSI, VFI). These low correlations support the argument that each of these subscales represents a different and distinct element of the community of practice construct.

Evidence for concurrent validity was provided by the correlations between the knowledge sharing subscales, i.e., Knowledge Sharing Behavior Scale-Personal Interactions (KSBS-PI) and the Behavior Intention Formation Knowledge Sharing (BIFKS) subscale. The correlation between these two subscales was 0.52, indicating a strong correlation.

The reliability and validity evidence supports the argument that the VALTPFS has satisfactory initial psychometric credentials. These credentials can serve as the empirical foundation upon which future studies can build upon to generate evidence for the instrument's construct validity. These studies will eventually result in the validation and confirmation of a version of the VALTPFS that can generate actionable information to inform the recruitment, development, and retention of volunteer adult literacy tutors-with the goal of establishing a volunteer tutor CoP. The establishment of a CoP will cultivate an environment where tutors work collectively to self-manage their practice. This semi-autonomy could enable volunteer tutor program managers to improve adult student outcomes, improve the volunteer tutor experience, improve the quality of tutoring services, and increase the number of tutors without significantly increasing program oversight requirements.

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Appendix A

Research Project Correspondence to Participating Organizations

Document A1 - Full Study Launch Email

****

Please reply to this email to confirm receipt. Your reply will become the official record of your organization's participation in this research project.

****

Hello _____,

First and foremost, I want to thank you for all your support. [Organization Name] has been with this project since March of 2021, when I first made a literature review study presentation to the Washington DC Adult Education Best Practices group. Your support has been the foundation for this research project. Speaking of which.....

For your convenience, below the **** line is the suggested "cut & paste" text that can be used for the email to your LNY Affiliates that have adult volunteers who provide basic literacy tutoring to adults (≥ 18 years old) with low literacy skills who are U.S. born native English language speakers. The proposed email contains the link to the survey questionnaire. The full study questionnaire link is active and ready for use.

Since this is a time sensitive process -- please contact me at 757-508-0193 if you have questions about the study or its procedures.

****

Tutors,

This email is an invitation for you to participate in a multi-state study to develop and validate the Volunteer Adult Literacy Tutor Perception Feedback Scale, i.e., a questionnaire. The questionnaire will take approximately 10 minutes or less to complete. Here is the link to the questionnaire

[https://vcuportal.questionpro.com/XXXXXXXXXX].

Please know that your participation is important. Your responses will contribute to the development of a questionnaire that will help program managers improve the volunteer adult literacy tutor experience—and thus improve student outcomes.

****

Thanks so very much for your support!

Document A2 - Reminder Email #1

****

Please reply to this email to confirm receipt. Your reply will become the official record of your organization's participation in this research project.

****
****

This is our first reminder email for the full study involving one-on-one basic literacy (BL) tutors. Please transmit a reminder email (see cut & paste text below the ****) to your BL tutors.

Background:

According to the data you provided, the full study sampling frame is ~ 692 BL tutors. This means we invited 692 BL tutors to participate in the study. As of 10:30 this morning [Date], we had 131 BL tutors complete the survey. So, although we are making good progress, it looks like the responses provided during the week of [Date] will be critical. We need at least 200+ completed responses in order to perform the statistical analysis needed to validate the questionnaire.

As such, this reminder email is very vital to our success. Please tailor the email template below so it resonates with your BL tutors and motivates those who have not responded to date to complete the questionnaire. As always, if you have questions about the study or its procedures, please contact me at XXX-XXX-XXXX.

****

Basic Literacy Tutors,

A few days ago, I sent an email seeking volunteers to participate in a multi-state study for the validation of the Volunteer Adult Literacy Tutor Perception Feedback Scale. This email is simply a reminder for those tutors who intend to support this research effort but have not had the opportunity to provide their responses. To date, 131 tutors have completed the survey questionnaire. However, we need at least 200+ completed questionnaires (i.e., no missing responses) to perform the statistical analysis needed to validate the questionnaire. Can you help us achieve this goal?

Here is the link to the survey: https://vcuportal.questionpro.com/XXXXXXX

It will take about 10 mins to complete. Please know that your participation is important. Your responses will contribute to the development of a questionnaire that will help program managers improve the volunteer tutor experience—and thus improve student outcomes.

****

Sincerely,

Document A3 - Reminder Email #2

****

Please reply to this email to confirm receipt. Your reply will become the official record of your organization's participation in this research project.

****

I am very pleased to report we are making good progress on the full study. This final push should "put us over the top."

However, I do have a concern. As of 1 pm today (Date), of the 692 basic literacy tutors invited to take the survey, 523 tutors clicked on the survey link to view the questionnaire. However, 262 of these tutors chose not to start the questionnaire. This is a very large number of eligible tutors who are aware of the research project but choosing not to participate.

The last day for the tutors to fill out the questionnaire is [Date]. Consequently, this reminder email is critical if we can encourage some of the 263 tutors who did not start the questionnaire to provide their responses and complete the questionnaire.

You know best how to communicate with your tutors. Please tailor the email template below so it resonates with your basic literacy tutors and motivates those who have not responded to date to complete the questionnaire. As always, if you have questions about the study or its procedures, please contact me at XXX-XXX-XXXX.

****

Basic Literacy Tutors,

Success is within our grasp! If you have not had the opportunity to complete the questionnaire, only a few days remain for you to fill out the Volunteer Adult Literacy Tutor Perception Feedback Scale. Your support is critical. We are very close to achieving the goal of 250+ completed questionnaires, i.e., questionnaires with all the questions answered.

Here is the link to the survey: https://vcuportal.questionpro.com/XXXXXX

It will take about 9 mins to complete. Please know that your participation is important. Your responses will contribute to the development of a questionnaire that will help program managers improve the volunteer tutor experience—and thus improve student outcomes.

****

Sincerely,

Document A4 - Thank You Email

Hello Everyone,

About 8 pm last night I "closed" the questionnaire. I am pleased to announce the full study was a complete success! We had 228 one-on-one basic literacy tutors complete the questionnaire, thus we achieved our goal of obtaining at least 200+ complete responses needed for the statistical analysis.

I want to thank you all for your outstanding support. Below is the sample text for the "Thank You" email to your tutors.

****

Tutors,

I want to thank those tutors who were able to participate in the study to validate the Volunteer Adult Literacy Tutor Perception Feedback Scale. By all measures, the study was a complete success. Two hundred and twenty eight (228) tutors completed the questionnaire; thus we achieved our goal of obtaining at least 200+ complete responses needed for the statistical analysis.

Thanks again for your support.

****

Document A5 - Organizational Announcement of Research Project Template #1

Dear [Organization Name] Tutors and Friends:

[Organization Name] has been asked to participate in a multi-state study to develop and validate a survey questionnaire designed to assess the perceptions of volunteers who provide one-on-one literacy instruction. Robert (Bob) Craig, a Ph.D. candidate at Virginia Commonwealth University is conducting his dissertation project on tutor perceptions in volunteer literacy programs. Bob is no stranger to our movement: In addition to 35 years of experience working for the federal government, Bob has also served as a GED® math instructor and volunteer one-one-one adult basic literacy tutor. Tom Beattie and I "Zoomed" with Bob last Friday to learn more about his project and we are impressed with his dedication and ability to see the "big picture." In short, we want to support his project!

Community-Based Literacy Organizations like ours struggle to gain insights about how well our tutor programs are recruiting, training, and retaining volunteer tutors. Currently, most of the existing tools used to assess the perceptions of volunteers are broadly applicable to any organization rather than specifically designed for one-on-one adult literacy tutors. I noted a similar trend when completing my M.A. in TESOL at Binghamton last year, too: there is a scarcity in recent research about teaching English-language learners. Most of the materials we used in the program dated back to 2012 or earlier.

This is why I'm glad Bob is taking up this research. His expertise will move literacy volunteer programs like ours closer to having a reliable way to obtain actionable feedback from our tutors and improve our volunteer tutoring programs.

Here is how we can help:

On [Day], [Date], I will be sending out an email with a link to a short survey. The email will contain more details about Bob's survey and the benefit of participation.

It's important to note that this survey is part of a pilot designed to test the validity of the survey tool itself. Once the survey tool is deemed "good to go," further surveys will be used to analyze tutor responses. I highly encourage all of us to complete Bob's pilot survey and to help him work out any bugs in the design.

It's exciting to be offered the opportunity to participate in this groundbreaking project which will ultimately help our Literacy Volunteer organizations better meet the needs of both tutors and students. Can we count on your help?

Sincerely,

[First Name]

[Title] [Organization Name]

Document A6 - Organizational Announcement of Research Project Template # 2

[Organization Name] Assisting with Multi-State Research Study Regarding Literacy Volunteers

Due to the highly-respected nature of the [Organization Name] organization and its tutors in Virginia, we have been asked to participate in a multi-state study to develop and validate a survey questionnaire designed to assess the perceptions of volunteers who provide one-on-one literacy instruction. Robert (Bob) Craig, a Ph.D. candidate at Virginia Commonwealth University is conducting his dissertation project on tutor perceptions in volunteer literacy programs. Bob is no stranger to adult literacy-- he has served as a volunteer one-one-one adult literacy tutor and a GED® math instructor.

Community-Based Literacy Organizations such as [Organization Name] struggle to gain insights about how well their tutor programs are recruiting, training, and retaining their volunteer tutors. Currently, most of the existing tools used to assess the perceptions of volunteers are broadly applicable to any organization and are not specifically designed for one-on-one adult literacy tutors. Executive Director [Name] encountered the same problem when conducting research for her Master's program several years ago and said, "I'm so glad Bob is taking up this research. Bob's expertise will move us closer to having a reliable way to obtain actionable feedback from our tutors about the quality of our volunteer tutoring programs." A select group of [Organization Name] volunteer tutors will be invited to participate in Mr. Craig's study via a questionnaire and we look forward to sharing updates with you.

Document A7 - Frequently Asked Questions [FAQs]

On 2 Dec 21, the full study for the validation of a Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS) will begin. In support of this effort, the following FAQs are provided to encourage your voluntary participation.

Estimated Time to Complete the Questionnaire: ≤ 11 minutes

Purpose: This research project will validate a survey questionnaire designed to facilitate the establishment of a tutor Community of Practice (CoP).

Benefits: The development of a tutor CoP will create a social environment where tutors work collectively to improve their tutor practice, improve their tutor experience, and ultimately improve their student's outcomes.

Questionnaire Design: This is an exploratory study to develop a questionnaire. As such, here are some helpful hints about how to take the survey:

- Go with your first thought to answer the questions, don't "over think" the question's meaning. Conversely,
- Some of the question answer choices may not be applicable to your unique situation, please select the answer that is the best choice available
- Some questions might seem redundant, but this is part of the research design. All the questions are important and need to be answered. Missing responses really hurt the study.
- Appreciate that numbers count, the more tutors who answer the questionnaire, the stronger the statistical evidence for its reliability and validity

Privacy & Confidentially: No personally identifiable information or organizational identifiable information will be collected. The survey will include demographic questions and questions pertaining your motivations for tutoring, knowledge sharing, and sense of belonging – all components of a tutor CoP.

So, with these thoughts in mind you are invited become part of a select group of volunteers participating in a multi-state research project to develop a "first-ever" questionnaire specifically designed for volunteer adult basic literacy tutors.

Document A8 - Virginia Adult Learning Resource Center Progress Newsletter, October 2021, Volume #32, No.1

by Robert Craig,
Ph.D. Candidate,
Virginia Commonwealth University,
School of Education

Assessing the Perceptions of Adult Volunteers who Provide One-on-One Basic Literacy Instruction: A Research Study

In the United States, community-based literacy organizations (CBLOs) have depended on volunteer tutors for decades. Volunteer adult literacy tutors are at the forefront of the nation's efforts to close the gap between the 43 million adults who could use adult literacy services and the system's current capacity to provide services to only 1.8 million adults annually. However, CBLOs struggle to gain insights about how well their tutor programs are recruiting, training, and retaining their volunteer tutors. Most of the existing instruments used to assess the attitudes and perceptions of volunteers are broadly applicable to any organization that uses volunteers, e.g., Volunteer Satisfaction Index, Volunteer Functions Inventory. None of the instruments are specifically designed for the adults who volunteer as one-on-one adult literacy tutors.

The lack of a survey questionnaire specifically designed for volunteer adult literacy tutors indicates a gap in the volunteer tutor body of knowledge. Its absence also presents an opportunity to produce something that could be used immediately by CBLOs. These were the two primary reasons why I decided to focus my dissertation research project on the validation of a survey questionnaire for volunteer adult literacy tutors—a questionnaire that would provide program managers with a reliable and valid means to obtain actionable feedback from tutors about the quality of their tutor management programs.

Purpose of the Study

The validation of a Volunteer Adult Literacy Tutor Perception Feedback Scale (VALTPFS) is a dissertation research project, the final step for me to fulfill the requirements for a Ph.D. in education. The VALTPFS is designed to assess the perceptions of adults who volunteer to provide one-on-one basic literacy instruction to tutees who are U.S. born native English language speaking adults (age 18+). The reason for this focus is that the English Learner (EL) population is very diverse, ranging from students with very little literacy skills in their native language to individuals

Assuming all goes well, for the first time CBLOs will have a survey questionnaire specifically designed for the adults who volunteer as one-on-one adult literacy tutors. This means program managers will have a reliable and valid means to obtain actionable feedback from their tutors about the quality of their tutor management programs.

with a Ph.D., so in order to narrow the scope, this particular study is directed towards U.S. born native English language speakers. The goal of the study is to produce initial evidence for the instrument's reliability, validity, and reasonableness of using the community of practice concept as a theoretical framework. In this regard, a community of practice (CoP) is defined as a group of people who are engaged in a practice, are passionate about it, learn from their interactions, and apply that learning to improve the practice on an ongoing basis. The purpose of the CoP is to develop the capabilities of its members by creating, expanding, and exchanging knowledge. For those CBLOs who would like to participate in this research study and assist in validating the VALTPFS, please send an email to craigr@vcu.edu.

Scope and Nature of the Research Project

The self-report questionnaire will be web-based using the VCU QuestionPro online survey tool platform. No personally identifiable information or organizational identifiable information will be collected. The questionnaire is expected to take about 20 minutes to complete. The survey will include demographic questions and questions pertaining to the tutor's perceptions and activities. The tutors will provide their answers using a 4- or 5-point Likert scale. The questions are allocated to four sub-scales (i.e., values, knowledge sharing, belonging, and organizational commitment/ citizenship). These subscales are what operationalize the CoP theoretical framework.

The results of this research project will provide evidence for the reliability and validity of the tutor survey questionnaire. Assuming all goes well, for the first time CBLOs will have a survey questionnaire specifically designed for the adults who volunteer as one-on-one adult literacy tutors. This means program managers will have a reliable and valid means to obtain actionable feedback from their tutors about the quality of their tutor management programs. Equally important, the instrument will enable CBLOs to systematically track their efforts to establish a CoP for their tutor program, i.e., cultivate an environment where tutors work collectively to self-manage their practice. This semi-autonomy will enable program managers to: improve student outcomes, improve the tutor's volunteer experience, improve the quality of tutoring services, and increase the number of tutors while simultaneously reducing program oversight requirements.

This is a great opportunity for Virginia CBLOs to be part of a research initiative with a nationwide reach. Join in with other states such as New York and Michigan and make your voices heard. If you would like more information or would like to stay informed of this study's progress, contact Robert (Bob) Craig at craigr@vcu.edu.

***Bob Craig**, M.P.A., M.Ed. (Adult Learning) is a Ph.D. candidate at Virginia Commonwealth University, School of Education, in the Research, Assessment & Evaluation track. Bob brings to his Ph.D. studies more than 35 years of experience working for the federal government as an engineer, logistician, program manager, strategic planner, and workforce development trainer for regional, national, and international organizations. In the areas of adult secondary education and adult literacy, Bob has served as a GED® math instructor and volunteer one-one-one adult literacy tutor.*

Appendix B

Sociodemographic Characteristics of Survey Respondents

Table B1

Characteristic	Pilot Study Frequency	Pilot Study Percent	Full Study Frequency	Full Study Percent
Gender				
Female	196	79.67	177	77.63
Male	49	19.92	48	21.05
Prefer not to answer	1	0.41	3	1.32
Ethnicity				
No, not of Hispanic, Latino, or Spanish origin	243	98.78	217	95.18
Yes, Mexican, Mexican Am, Chicano	1	0.41	1	0.44
Yes, Puerto Rican			1	0.44
Yes, Cuban			3	1.32
Yes, another Hispanic, Latino, or Spanish origin	2	0.81	6	2.63
Race				
White	221	89.84	194	85.09
Black/African American	5	2.03	20	8.77
Asian	13	5.28	4	1.75
Biracial	2	0.81	5	2.19
Some other race	4	1.63	4	1.75
Missing	1	0.41	1	0.44
Age				
18-24	5	2.03	4	1.75
25-34	10	4.07	3	1.32
35-44	15	6.10	13	5.70
45-54	21	8.54	11	4.82
55-64	47	19.11	51	22.37
Above 64	148	60.16	145	63.60
Missing			1	0.44
Level of Education				
High school diploma or equivalent credential (i.e., GED, HSE)	1	0.41	4	1.75
Some college, no degree	5	2.03	13	5.70
Associate degree	3	1.22	12	5.26
Bachelor's degree	79	32.11	68	29.82
Master's degree	109	44.31	97	42.54
Professional or Doctorate degree	49	19.92	34	14.91

Note: Pilot Study N= 246, Full Study N = 228

Sociodemographic Characteristics of Survey Respondents

Table B2

	Pilot Study		Full Study	
Characteristic	Frequency	Percent	Frequency	Percent
Time Tutoring				
This is my first year	27	10.98	37	16.23
1-2 years	77	31.30	39	17.11
2-3 years	67	27.24	43	18.86
3-4 years	75	30.49	109	47.81
Hours per Week Tutoring				
1-2 hours	195	79.27	156	68.42
3-4 hours	44	17.89	55	24.12
5+ hours	4	1.63	16	7.02
Missing	3	1.22	1	0.44
Current Main Working Situation				
Retired	159	64.63	143	62.72
Full-time paid employment	36	14.63	32	14.04
Part-time paid employment	21	8.54	27	11.84
Self-employed	20	8.13	15	6.58
Unemployed/Looking for work	3	1.22	1	0.44
Stay at home parent/caretaker	1	0.41	4	1.75
College student	3	1.22	2	0.88
Other	3	1.22	4	1.75

Note: Pilot Study N= 246, Full Study N = 228

Appendix C

Descriptive Statistics

Question	N	# Missing	Mean	Median	Std. Dev.	Min	Max	Skewness	Kurtosis
q9	228		4.5	5.000	1.0	1	5	-2.54	9.46
q10	228		4.6	5.000	0.8	1	5	-3.10	13.60
q11	228		4.7	5.000	0.7	1	5	-3.20	16.08
q12	228		4.8	5.000	0.6	1	5	-4.39	25.88
q13	228		4.7	5.000	0.7	1	5	-2.83	13.60
q14	228		1.9	2.000	0.9	1	4	.64	2.27
q15	228		1.9	2.000	0.9	1	4	.56	2.38
q16	228		1.8	2.000	0.9	1	4	.81	2.68
q17	228		2.0	2.000	1.0	1	4	.46	2.07
q18	227	1	2.0	2.000	0.9	1	4	.50	2.18
q19	228		4.3	4.000	0.8	2	5	-.94	3.34
q20	228		4.3	4.000	0.8	1	5	-1.26	4.80
q21	228		4.0	4.000	0.9	1	5	-.60	2.82
q22	228		4.3	4.000	0.8	1	5	-1.40	5.84
q23	228		4.3	4.000	0.8	1	5	-1.18	4.78

Note: In Stata, a normal distribution will have a skew = 0.0 and a kurtosis = 3.0. For this study, skewness values within the range of ± 2.0, and kurtosis values within ± 6.0, were considered acceptable.

Questions (Variable Labels):

q9. I am concerned about those less fortunate than myself
q10. I am genuinely concerned about the adults with low literacy skills I am serving
q11. I feel compassion toward people with low literacy skills
q12. I feel it is important to help adults learn to read
q13. I can do something for adult literacy that is important to me
q14. I support less-experienced tutors with time from my personal schedule
q15. I spend time in personal conversation with other tutors to help them with their volunteer-tutoring related problems
q16. I keep other tutors updated with important tutoring related information through personal conversation
q17. I share passion and excitement on some specific subjects with other tutors through personal conversations
q18. I share experiences that may help other tutors avoid risks and trouble through personal conversation
q19. The availability of getting tutoring help when I need it
q20. The support network that is in place for me when I have tutoring-related problems
q21. The way in which the literacy organization provides me with tutor quality feedback
q22. The flow of communication coming to me from paid literacy organizational staff
q23. How often the literacy organization acknowledges the work I do

Appendix D

Correlation Matrix: q9 – q23

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) q9	—														
(2) q10	0.37	—													
(3) q11	0.31	0.69	—												
(4) q12	0.25	0.66	0.75	—											
(5) q13	0.27	0.50	0.62	0.73	—										
(6) q14	0.08	0.15	0.06	0.07	0.14	—									
(7) q15	0.04	0.09	0.05	0.01	0.11	0.77	—								
(8) q16	0.05	0.05	0.04	0.02	0.15	0.79	0.81	—							
(9) q17	0.05	0.11	0.08	0.06	0.16	0.70	0.80	0.78	—						
(10) q18	0.02	0.05	0.04	0.03	0.07	0.71	0.82	0.81	0.81	—					
(11) q19	0.09	0.11	0.15	0.15	0.21	0.04	0.05	0.05	0.07	0.07	—				
(12) q20	0.10	0.13	0.20	0.17	0.23	0.09	0.11	0.13	0.14	0.13	0.86	—			
(13) q21	0.07	0.11	0.16	0.20	0.26	0.16	0.19	0.17	0.20	0.21	0.61	0.68	—		
(14) q22	0.07	0.11	0.17	0.20	0.23	0.11	0.07	0.10	0.13	0.06	0.69	0.75	0.70	—	
(15) q23	0.11	0.12	0.15	0.11	0.18	0.14	0.13	0.14	0.18	0.16	0.65	0.72	0.65	0.74	—

Note: Observations = 227

Questions:

q9. I am concerned about those less fortunate than myself
q10. I am genuinely concerned about the adults with low literacy skills I am serving
q11. I feel compassion toward people with low literacy skills
q12. I feel it is important to help adults learn to read
q13. I can do something for adult literacy that is important to me
q14. I support less-experienced tutors with time from my personal schedule
q15. I spend time in personal conversation with other tutors to help them with their volunteer-tutoring related problems
q16. I keep other tutors updated with important tutoring related information through personal conversation
q17. I share passion and excitement on some specific subjects with other tutors through personal conversations
q18. I share experiences that may help other tutors avoid risks and trouble through personal conversation
q19. The availability of getting tutoring help when I need it
q20. The support network that is in place for me when I have tutoring-related problems
q21. The way in which the literacy organization provides me with tutor quality feedback
q22. The flow of communication coming to me from paid literacy organizational staff
q23. How often the literacy organization acknowledges the work I do

Appendix E

Skewness/Kurtosis Tests for Normality: Sktest (q9- q 41)

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj_chi2(2)	Prob>chi2
q9	228	0.000	0.000	.	0.000
q10	228	0.000	0.000	.	0.000
q11	228	0.000	0.000	.	0.000
q12	228	0.000	0.000	.	0.000
q13	228	0.000	0.000	.	0.000
q14	228	0.000	0.001	20.930	0.000
q15	228	0.001	0.011	15.000	0.001
q16	228	0.000	0.340	18.130	0.000
q17	228	0.005	0.000	28.230	0.000
q18	227	0.002	0.000	21.270	0.000
q19	228	0.000	0.239	22.560	0.000
q20	228	0.000	0.000	41.030	0.000
q21	228	0.000	0.710	11.250	0.004
q22	228	0.000	0.000	51.020	0.000
q23	228	0.000	0.000	38.330	0.000
q24	228	0.000	0.012	16.240	0.000
q25	228	0.000	0.395	29.790	0.000
q26	228	0.000	0.293	23.840	0.000
q27	228	0.002	0.000	24.660	0.000
q28	227	0.144	0.000	.	0.000
q29	226	0.000	0.001	23.980	0.000
revq30	227	0.000	0.000	47.330	0.000
q31	227	0.028	0.162	6.500	0.039
q32	227	0.035	0.229	5.810	0.055
q33	225	0.344	0.455	1.470	0.480
q34	228	0.000	0.003	22.490	0.000
q35	228	0.000	0.001	33.220	0.000
q36	227	0.000	0.119	14.240	0.001
q37	228	0.001	0.155	11.740	0.003
q38	228	0.000	0.004	19.250	0.000
q39	228	0.001	0.004	15.500	0.000
q40	228	0.000	0.000	.	0.000
q41	227	0.063	0.177	5.300	0.071

Note: For each test, the null hypothesis is that the data are distributed normally. As such, significant p-values indicate the distribution in not normally distributed.

Appendix F

MVTest for Normality: Volunteer Functions Inventory-Values (q9 – q13)

Doornik-Hansen Test for Bivariate Normality

Pair of variables		Chi2	DF	Prob.Chi2
q9	q10	1348.07	4	0.0000
	q11	1247.86	4	0.0000
	q12	2018.17	4	0.0000
	q13	1050.37	4	0.0000
q10	q11	736.54	4	0.0000
	q12	1083.92	4	0.0000
	q13	933.96	4	0.0000
q11	q12	414.76	4	0.0000
	q13	571.48	4	0.0000
q12	q13	911.64	4	0.0000

Test for Multivariate Normality

Mardia mSkewness	= 64.50317	Chi2(35) = 2494.264	Prob>Chi2 = 0.0000
Mardia mKurtosis	= 147.1404	Chi2(1) = 10240.031	Prob>Chi2 = 0.0000
Henze-Zirkler	= 59.66942	Chi2(35) = 3581.289	Prob>Chi2 = 0.0000
Doornik-Hansen		Chi2(35) = 1757.145	Prob>Chi2 = 0.0000

Note: Questions

q9. I am concerned about those less fortunate than myself

q10. I am genuinely concerned about the adults with low literacy skills I am serving

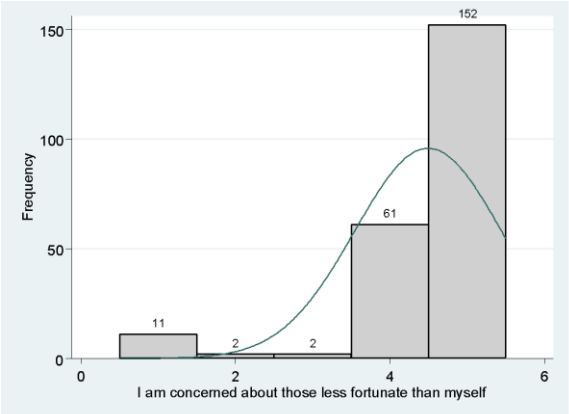
q11. I feel compassion toward people with low literacy skills

q12. I feel it is important to help adults learn to read

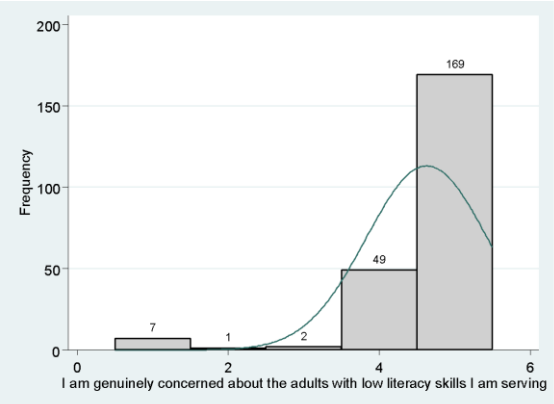
q13. I can do something for adult literacy that is important to me

Appendix G
Volunteer Functions Inventory-Values Histograms (q9 – q13)

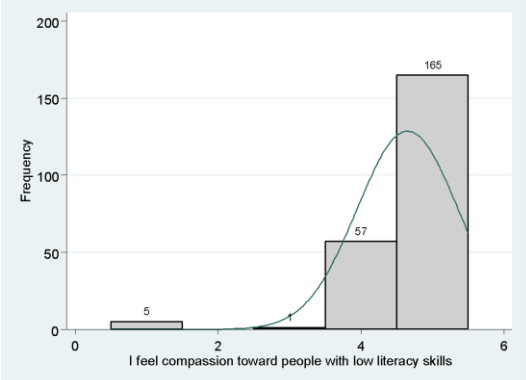
q9



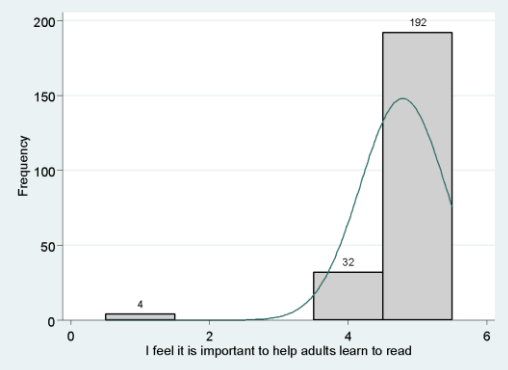
q10



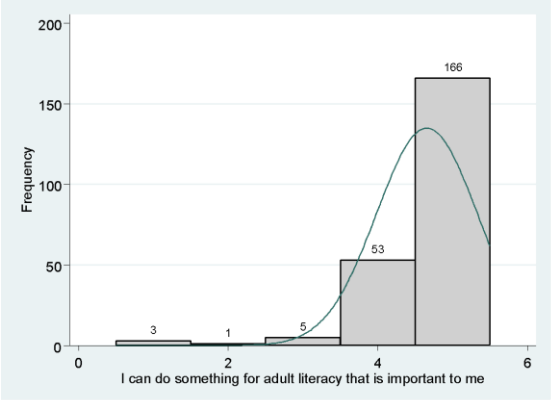
q11



q12



q13



Note: Response Options: (1) Strongly Disagree, (2) Disagree, (3) Undecided, (4) Agree, (5) Strongly Agree

Appendix H

MVTest for Normality: Knowledge Sharing Behavior Scale- Personal Interactions (q14 – q18)

Doornik-Hansen Test for Bivariate Normality

Pair of variables		Chi2	DF	Prob.Chi2
q14	q15	64.64	4	0.0000
	q16	70.43	4	0.0000
	q17	64.44	4	0.0000
	q18	65.51	4	0.0000
q15	q16	48.01	4	0.0000
	q17	45.09	4	0.0000
	q18	24.47	4	0.0000
q16	q17	65.57	4	0.0000
	q18	67.41	4	0.0000
q17	q18	29.72	4	0.0000

Test for Multivariate Normality

Mardia mSkewness	= 5.069876	Chi2(35) = 195.201	Prob>Chi2 = 0.0000
Mardia mKurtosis	= 49.15427	Chi2(1) = 162.421	Prob>Chi2 = 0.0000
Henze-Zirkler	= 19.56862	Chi2(35) = 1926.747	Prob>Chi2 = 0.0000
Doornik-Hansen		Chi2(35) = 122.812	Prob>Chi2 = 0.0000

Note: Questions

q14. I support less-experienced tutors with time from my personal schedule

q15. I spend time in personal conversation with other tutors to help them with their volunteer-tutoring related problems

q16. I keep other tutors updated with important tutoring related information through personal conversation

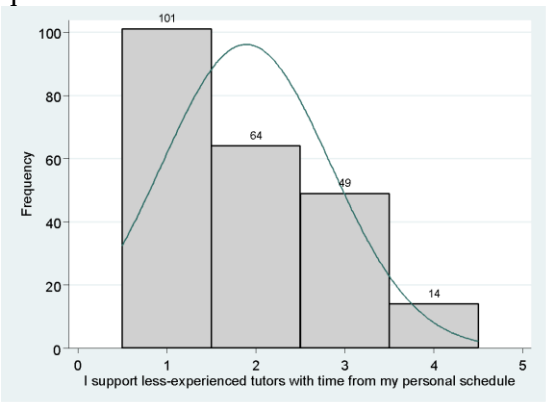
q17. I share passion and excitement on some specific subjects with other tutors through personal conversations

q18. I share experiences that may help other tutors avoid risks and trouble through personal conversation

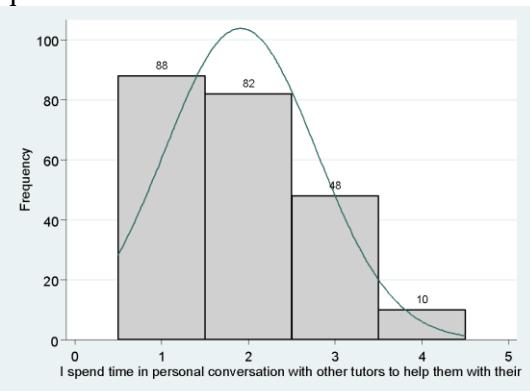
Appendix I

Histograms: Knowledge Sharing Behavior Scale- Personal Interactions (q14 – q18)

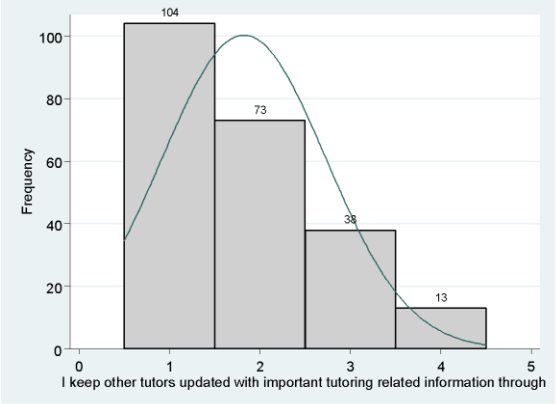
q14



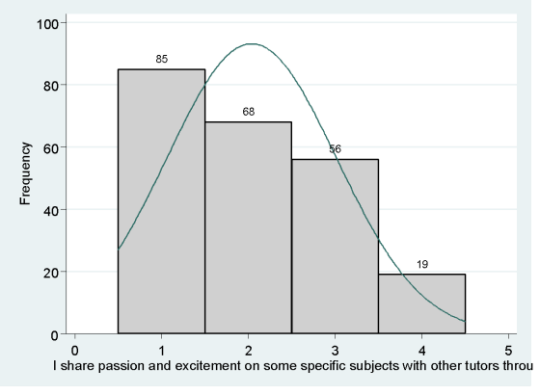
q15



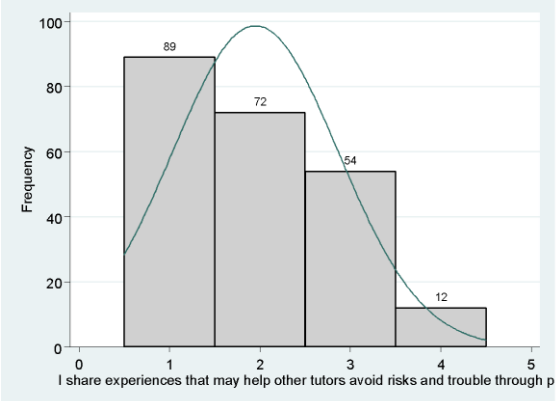
q16



q17



q18



Note: Response Options: (1) Never, (2) Rarely, (3) Sometimes, (4) Often

Appendix J

MVTest for Normality: Volunteer Satisfaction Index – Organizational Support (q19 – q23)

Doornik-Hansen Test for Bivariate Normality

Pair of variables		Chi2	DF	Prob.Chi2
q19	q20	95.25	4	0.0000
	q21	69.00	4	0.0000
	q22	114.36	4	0.0000
	q23	100.26	4	0.0000
q20	q21	76.80	4	0.0000
	q22	111.97	4	0.0000
	q23	92.61	4	0.0000
q21	q22	68.53	4	0.0000
	q23	74.71	4	0.0000
q22	q23	64.39	4	0.0000

Test for Multivariate Normality

Mardia mSkewness	= 8.626436	Chi2(35) = 333.574	Prob>Chi2 = 0.0000
Mardia mKurtosis	= 52.29459	Chi2(1) = 243.555	Prob>Chi2 = 0.0000
Henze-Zirkler	= 18.04674	Chi2(35) = 1829.485	Prob>Chi2 = 0.0000
Doornik-Hansen		Chi2(35) = 134.319	Prob>Chi2 = 0.0000

Note: Questions

q19. The availability of getting tutoring help when I need it

q20. The support network that is in place for me when I have tutoring-related problems

q21. The way in which the literacy organization provides me with tutor quality feedback

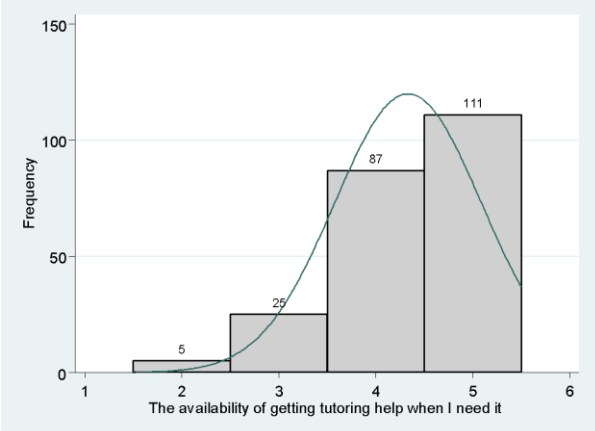
q22. The flow of communication coming to me from paid literacy organizational staff

q23. How often the literacy organization acknowledges the work I do

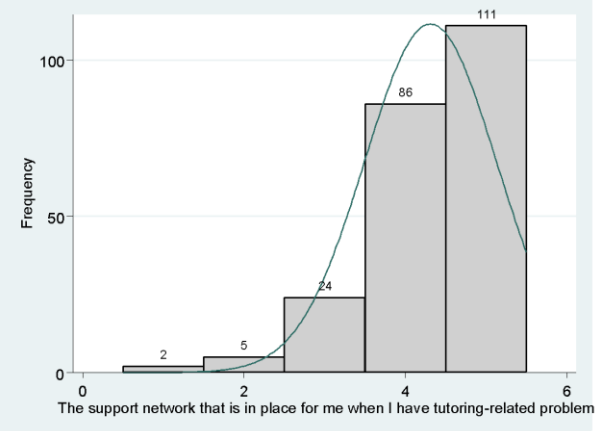
Appendix K

Histograms: Volunteer Satisfaction Index – Organizational Support (q19 – q23)

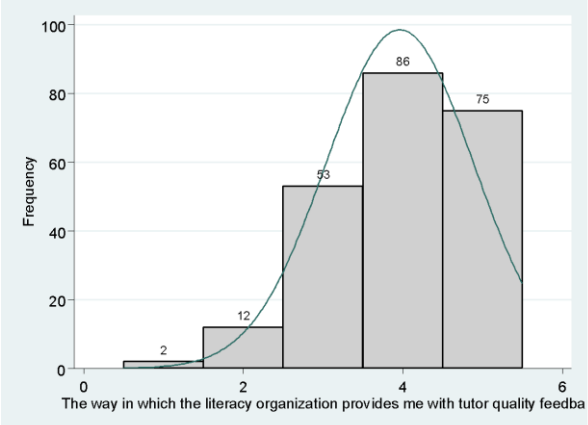
q19



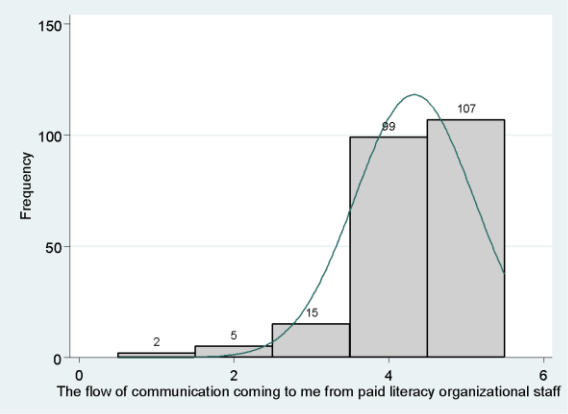
q20



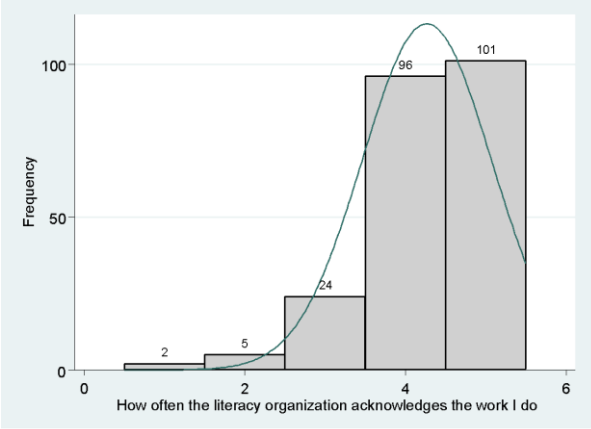
q21



q22



q23



Note: Response Options – (1) Very Dissatisfied, (2) Dissatisfied, (3) Unsure, (4) Satisfied, (5) Very Satisfied

Appendix L

Factor Loadings, Subscale Naming, and Question-Subscale Alignment

Factor #	Subscale	Question
Factor 1	Knowledge Sharing Behavior Scale-Personal Interactions (KSBS-PI)	q14. I support less-experienced tutors with time from my personal schedule
		q15. I spend time in personal conversation with other tutors to help them with their volunteer-tutoring related problems
		q16. I keep other tutors updated with important tutoring related information through personal conversation
		q17. I share passion and excitement on some specific subjects with other tutors through personal conversations
		q18. I share experiences that may help other tutors avoid risks and trouble through personal conversation
Factor 2	Volunteer Satisfaction Index – Organizational Support (VSI-OS)	q19. The availability of getting tutoring help when I need it
		q20. The support network that is in place for me when I have tutoring-related problems
		q21. The way in which the literacy organization provides me with tutor quality feedback
		q22. The flow of communication coming to me from paid literacy organizational staff
		q23. How often the literacy organization acknowledges the work I do
Factor 3	Volunteer Functions Inventory-Values (VFI-V)	q9. I am concerned about those less fortunate than myself
		q10. I am genuinely concerned about the adults with low literacy skills I am serving
		q11. I feel compassion toward people with low literacy skills
		q12. I feel it is important to help adults learn to read
		q13. I can do something for adult literacy that is important to me

Note: Subscale Descriptions:
(KSBS-PI) These questions inquire about the frequency of sharing knowledge with other tutors.
(VSI-OS) The following statements inquire about your level of satisfaction with the support you receive from your literacy organization.
(VFI-V) The following statements inquire the values that motivate you to volunteer as an adult literacy tutor.

Appendix M

Scales for Evidence Based on Relationships to Other Variables

Scale	Questions
Organizational Citizenship Behavior (OCB)	24. I help other tutors 25. I help to orient new tutors 26. I help the volunteer tutor coordinator with tutor program related work 27. I make innovative suggestions to improve the volunteer tutor program 28. I volunteer to support fundraising events in support of the literacy organization
Behavioral Intention Formation Knowledge Sharing (BIFKS)	29. My knowledge sharing with other tutors is good for the organization 30. My knowledge sharing with other tutors is harmful for the organization 31. My knowledge sharing with other tutors is an enjoyable experience for me 32. My knowledge sharing with other tutors is valuable to me 33. My knowledge sharing with other tutors is a wise move for me
Organizational Commitment (OC)	34. I am willing to put in a great deal of effort to help this literacy organization be successful 35. I talk up this literacy organization to my friends as a great nonprofit organization to volunteer for 36. I feel a lot of loyalty to this literacy organization 37. I find that my values and the literacy organization's values are very similar 38. I am proud to tell others that I support this literacy organization 39. I am extremely glad that I chose this literacy organization to volunteer for over other volunteer organizations I was considering at the time I joined 40. I really care about the fate of the literacy organization where I volunteer 41. For me, my literacy organization this is the best of all possible organizations for which to volunteer

Note: Subscale Descriptions:
OCB: These questions inquire about organizational citizenship behaviors
BIFKS: These questions inquire about attitudes toward knowledge sharing.
OC: The following questions inquire about organizational commitment.

Appendix N

Final Questionnaire

Thank you for taking time from your busy schedule to participate in this research study.

Purpose: This research project will validate a survey questionnaire designed to facilitate the establishment of a tutor Community of Practice (CoP).

Benefits: The development of a tutor CoP will create a social environment where tutors work collectively to improve their tutor practice, improve their tutor experience, and ultimately improve their student's outcomes.

Goal: The goal of this study is to develop and validate a questionnaire specifically designed for volunteer adult literacy tutors. Because we are developing a questionnaire, please keep the following points in mind:

- The next page is an information form. It will help you decide if you want to participate in this study. As a university sponsored researcher, I have a mandatory requirement to provide you this information.

- Some of the questions on the questionnaire will seem redundant, but this is part of the research design. Please try your best to answer all the questions – each question is important.

- The questionnaire will take approximately 10 minutes or less to complete. However, you have a "save and continue" option if you are not able to complete the questionnaire.

So, with these thoughts in mind I invite you to become part of a select group of volunteers participating in a multi-state research project to develop a "first-ever" questionnaire specifically designed for volunteer adult basic literacy tutors.

You are invited to participate in a pilot study for the development of Volunteer Adult Literacy Tutor Perception Feedback Scale, i.e., a questionnaire. The survey questionnaire includes demographic questions and questions about your motivations to volunteer, knowledge sharing, and sense of belonging.

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions.

Your survey responses will be strictly confidential and no personally identifiable information or organizational identifiable information will be collected. Your responses will be coded and will remain confidential. As such, although the results of this research may be presented at meetings, conferences, or in publications, all information from the study will be presented in de-identified form.

There will not be any direct benefits to participants in this study. However, the participants will have an opportunity to contribute to the knowledge and research base about volunteer adult literacy tutors. This contribution could ultimately lead to the improvements in the management of volunteer adult literacy tutor programs, thus resulting in improved volunteer tutor experiences and student outcomes.

If you have questions at any time about the survey or the procedures, you may contact Bob Craig by email at craigr@vcu.edu. Thank you very much for your time and support. Please click on the "I agree" checkbox below to accept the terms of this study. Once this box is checked, please start the survey by clicking on the Start button.

□ I agree

Are you an adult (≥age 18 years old) who volunteers to provide, or have experience providing, one-on-one basic literacy tutoring to adults (≥ 18 years old) with low literacy skills who are U.S. born native English language speakers?

1. Yes
2. No

1. What is your gender
1. Female
2. Male
3. I prefer not to answer

2. Are you of Hispanic, Latino, or Spanish origin?
1. No, not of Hispanic, Latino, or Spanish origin
2. Yes, Mexican, Mexican Am., Chicano
3. Yes, Puerto Rican
4. Yes, Cuban
5. Yes, another Hispanic, Latino, or Spanish origin

3. What is your race?
1. White
2. Black/African American
3. Asian
4. Biracial/Multiracial
5. Some other race

4. What is your age?
1. 18-24
2. 25-34
3. 35-44
4. 45-54
5. 55-64
6. Above 64

4. What is your level of education
1. High school diploma or equivalent credential (i.e., GED, HSE)
2. Some college, no degree
3. Associate degree
4. Bachelor's degree
5. Master's degree
6. Professional or Doctorate degree

6. How long have you been tutoring?
1. This is my first year
2. 1-2 years
3. 3-4 years
4. 5+ years

7. How many hours per week do you tutor?
1. 1-2 hours
2. 3-4 hours
3. 5+ hours

8. Which of the following best describes your current main working situation?
1. Retired
2. Full-time paid employment
3. Part time paid employment
4. Self employed
5. Unemployed/looking for work
6. Stay at home parent/caretaker
7. College student
8. Other

(VSI-Values Subscale) The following statements inquire the values that motivate you to volunteer as an adult literacy tutor. Please indicate your level of agreement with the following statements using a 5-point scale that ranges from 'strongly disagree' to 'strongly agree.'

~~9. I am concerned about those less fortunate than myself~~[32]
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

10. I am genuinely concerned about the adults with low literacy skills I am serving
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

11. I feel compassion toward people with low literacy skills
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

12. I feel it is important to help adults learn to read
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

13. I can do something for adult literacy that is important to me
1. Strongly Disagree

[32] Item 9 should be dropped from the final questionnaire since it lowers the subscale's alpha level, has a low factor loading (0.478), and a high uniqueness value (0.772).

2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

(KSBS-PI) The following questions inquire about the frequency of sharing knowledge with other tutors. For each of the following knowledge sharing activities, please indicate the frequency you conduct these activities using a 4-point scale that ranges from 'never' to 'often.'

14. I support less-experienced tutors with time from my personal schedule
1. Never
2. Rarely
3. Sometimes
4. Often

15. I spend time in personal conversation with other tutors to help them with their volunteer-tutoring related problems
1. Never
2. Rarely
3. Sometimes
4. Often

16. I keep other tutors updated with important tutoring related information through personal conversation
1. Never
2. Rarely
3. Sometimes
4. Often

17. I share passion and excitement on some specific subjects with other tutors through personal conversations
1. Never
2. Rarely
3. Sometimes
4. Often

18. I share experiences that may help other tutors avoid risks and trouble through personal conversation
1. Never
2. Rarely
3. Sometimes
4. Often

(VSI-OS) The following statements inquire about your level of satisfaction with the support you receive from your literacy organization. Please indicate your level of agreement with the following statements using a 5-point scale that ranges from 'very dissatisfied' to 'very satisfied.'

19. The availability of getting tutoring help when I need it
1. Very dissatisfied
2. Dissatisfied
3. Unsure
4. Satisfied
5. Very satisfied

20. The support network that is in place for me when I have tutoring-related problems
1. Very dissatisfied
2. Dissatisfied
3. Unsure
4. Satisfied
5. Very satisfied

21. The way in which the literacy organization provides me with tutor quality feedback
1. Very dissatisfied
2. Dissatisfied
3. Unsure
4. Satisfied
5. Very satisfied

22. The flow of communication coming to me from paid literacy organizational staff
1. Very dissatisfied
2. Dissatisfied
3. Unsure
4. Satisfied
5. Very satisfied

23. How often the literacy organization acknowledges the work I do
1. Very dissatisfied
2. Dissatisfied
3. Unsure
4. Satisfied
5. Very satisfied

The following questions inquire about organizational citizenship behaviors (OCB). Please indicate the frequency you conduct these activities using a 4-point scale that ranges from 'never' to 'often.'

24. I help other tutors
1. Never
2. Rarely
3. Sometimes
4. Often

25. I help to orient new tutors
1. Never
2. Rarely
3. Sometimes
4. Often

26. I help the volunteer tutor coordinator with tutor program related work
1. Never
2. Rarely
3. Sometimes
4. Often

27. I make innovative suggestions to improve the volunteer tutor program
1. Never
2. Rarely
3. Sometimes
4. Often

28. I volunteer to support fundraising events in support of the literacy organization
1. Never
2. Rarely
3. Sometimes
4. Often

(BIFKS) The following questions inquire about attitudes toward knowledge sharing. Please indicate your level of agreement with the following statements using a 5-point scale that ranges from 'strongly disagree' to 'strongly agree.'

29. My knowledge sharing with other tutors is good for the organization
1. Strongly disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly agree

30. My knowledge sharing with other tutors is harmful for the organization
1. Strongly disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly agree

31. My knowledge sharing with other tutors is an enjoyable experience for me
1. Strongly disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly agree

32. My knowledge sharing with other tutors is valuable to me
1. Strongly disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly agree

33. My knowledge sharing with other tutors is a wise move for me
1. Strongly disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly agree

(OC) The following questions inquire about organizational commitment (OC). Please indicate your level of agreement with the following statements using a 5-point scale that ranges from 'strongly disagree' to 'strongly agree.'

34. I am willing to put in a great deal of effort to help this literacy organization be successful
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

35. I talk up this literacy organization to my friends as a great nonprofit organization to volunteer for
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

36. I feel a lot of loyalty to this literacy organization
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

37. I find that my values and the literacy organization’s values are very similar
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

38. I am proud to tell others that I support this literacy organization
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

39. I am extremely glad that I chose this literacy organization to volunteer for over other volunteer organizations I was considering at the time I joined
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

40. I really care about the fate of the literacy organization where I volunteer
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree

41. For me, my literacy organization this is the best of all possible organizations for which to volunteer
1. Strongly Disagree
2. Disagree
3. Undecided
4. Agree
5. Strongly Agree