VOLUNTEERISM AT NATURAL RESOURCE MANAGEMENT AGENCIES:

EXAMINING THE EFFECTS OF VOLUNTEERS' MOTIVATION, SATISFACTION,

AND GENERATIVITY ON VOLUNTEER COMMITMENT

A Dissertation

by

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Submitted to the Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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May 2017

Major Subject: Recreation, Park and Tourism Sciences

ABSTRACT

The past quarter-century's fiscal constraints have led natural resource management agencies (e.g., U.S. Forest Service, and Bureau of Land Management) to be increasingly dependent upon volunteer work as a critical resource. However, only a few studies have investigated volunteers' unique psychology (e.g., their motivation, satisfaction, and commitment) within the context of environmental volunteering.

The purpose of this research was to develop a comprehensive model to examine the effects of volunteers' motivation, satisfaction, and generativity on volunteer commitment in a natural resource-based volunteering context. Furthermore, this work examined if environmental volunteers with various socio-demographic characteristics experienced volunteering differently from one another. Specifically, this investigation was premised on two main research questions: Research Question 1: Can the commitment of those volunteering for natural resource management agencies be attributed to their motivation, satisfaction, and generativity? Research Question 2: Do people with various socio-demographic characteristics (e.g., age, gender, education level, and employment status) experience volunteering for natural resource management agencies differently from one another?

This study conducted an online survey on individuals who volunteered for the Texas Parks and Wildlife Department (TPWD). A Structural Equation Modeling (SEM) procedure using a two-step approach in Linear Structural Relations (8.8 version) was

used to address Research Question 1. A bivariate analysis (e.g., a one-way ANOVA test and an independent *t*-test) was used to address Research Question 2.

      This study offered a view of attributes of environmental volunteers. Moreover, it uncovered the dynamic nature of the psychology of volunteerism: volunteers' motivation, satisfaction, and commitment positively impact their level of dedication. Additionally, volunteers tend to experience their volunteering for natural resource management agencies differently, depending on their various socio-demographic characteristics. The study contributes to natural resource management agencies in understanding the various factors that may help them recruit, satisfy, and maintain environmental volunteers.

ACKNOWLEDGEMENTS

also to my life mentor, Jiming Li, for his words of wisdom; you have helped me get

through every difficulty that I encountered during this course of study. Last but never

least, I would like to thank my mother, Aifang Chen. I would never have finished this

lengthy voyage without your understanding and encouragement.

CONTRIBUTORS AND FUNDING SOURCES

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CHAPTER I

INTRODUCTION

Volunteers are regularly described as the "backbone" of public and nonprofit service (Ellis & Noyes, 1990). Volunteering serves as an integral element of our society, contributing to "the support and reproduction of social structures and the maintenance of social fabric" (McComb, 1995, p. 297). Many nonprofit organizations and government agencies rely heavily on the assistance of volunteers to accomplish their goals and continue their function (Musick & Wilson, 2008). Volunteerism has thrived in the United States, rendering substantial benefits to nonprofit agencies and the whole of society (Crane, 2013; Trauntvein, 2011). For example, in the United States approximately 62.6 million people age 16 and over (24.9 percent of that demographic group) "volunteered through or for an organization at least once between September of 2014 and September of 2015" (Bureau of Labor Statistics, 2016, p. 1). In 2015, American adults volunteered nearly 7.8 billion hours of their time. The value of the volunteer service donated in that single year had an approximated amount of nearly $184 billion, based on the estimated average value of one volunteer hour in the independent sector (Corporation for National and Community Service, 2015). These statistics underscore the significant temporal and economic contributions that volunteers make, and the role their sacrifice plays in American communities and society (Wells, 2005).

An array of factors has promoted this still-growing wave of volunteerism. First, funds earmarked for paid public-sector personnel have been adversely affected by the

increasingly severe fiscal limitations public agencies are facing (Trauntvein, 2011). Additionally, organizations are growing increasingly appreciative of the advantages of incorporating stakeholders in management decisions (Wright, Underhill, Keene, & Knight, 2015). The retirement of Baby Boomers has boosted the size of the volunteer pool in recent years. Seniors provide a potentially substantial resource in experience, available time, and numbers (Pillemer & Wagenet, 2008; Pillemer, Wagenet, Goldman, Bushway, & Meador, 2009; Wells & Pillemer, 2015).

Concurrently, in recent years governments have gradually intensified their effort to mobilize the volunteer force, a fact that underscores their increasing interest in volunteerism (Musick & Wilson, 2008). For example, volunteerism became a center of American politics during the Clinton administration when the conferences known as the "Summit for America's Future" (p. 28) took place (Alter, 1997). At that time, the President proclaimed the close of "the era of big government" (p. 28) and the commencement of "the era of big citizen" (Alter, 1997, p. 28). Musick and Wilson (2008) attributed this increase to a combination of factors. Since the economic crisis of the 1970s, the federal government has encouraged nationwide self-sufficiency. This has been promoted via diverse political doctrines as a means of decentralizing government authority and relocating it in smaller neighborhood and community administrative units (Crane, 2013). In addition, the maturing of identity politics in the United States has also been a contributing factor to Americans' increased interest in volunteerism (Musick & Wilson, 2008). The term "identity politics" refers to political actions centering on social acceptance and the unique interests of groups with which people identify (Stanford

Encyclopedia of Philosophy, 2012). Lastly, a lingering concern about the degradation of civic engagement in the United States has also helped to cultivate this growing interest in volunteering (Putnam, 2000).

I.1 Volunteer Behavior

Volunteerism has been examined extensively in academic research, especially with regards to the various drivers that lead to this type of pro-social behavior (Bekkers, & Schuyt, 2008; Burns, Reid, Toncar, Fawcett, & Anderson, 2006; Clary & Snyder, 1999; Eça de Abreu, Laureano, Alwi, da Silva, & Dionísio, 2015; Gregory, 2006; Withers, Browner, & Aghaloo, 2013).

Among the different factors related to volunteerism, the motivation to volunteer is the most widely studied area of research (Haski-Leventhal, 2009). For example, Clary and colleagues (1998) used the functional approach to understand and assess volunteers' motivations. This approach proposes that the desire to satisfy people's personal or social functions (e.g., furthering a career, promoting social relationships, or following individual values) is what encourages non-volunteers to become volunteers (see Clary & Snyder, 1991; Snyder, 1993). Accordingly, it is very important to recognize the needs satisfied or purposes served through volunteering, in order to understand the reasons behind a person's engagement with a particular volunteering behavior (Clary *et al*., 1998; Penner & Finkelstein, 1998).

Personality traits have also been frequently used as explanatory variables in predicting how volunteerism has been assessed (Aydinli *et al*., 2015; Reddy & Smith, 1972; Smith & Nelson, 1975). Penner (2002) compared a sample of active volunteers

with non-volunteers and found that the volunteers placed significantly more emphasis on pro-social personalities, such as other-oriented empathy and helpfulness. This result indicates that pro-social personalities may have strong predictive value with regards to volunteering behavior.

The extensive existing research on the drivers of volunteerism (e.g., what motivates individuals to volunteer and the unique aspects of volunteers' personalities) provides information that program managers can apply when recruiting volunteers and ensuring their satisfaction with the experience (Omoto & Snyder, 1995; Penner & Finkelstein, 1998). However, the research on "who is likely to provide sustained voluntary services" is minimal (Aydinli *et al*., 2015, p. 2). Committed volunteers are critical to volunteer-dependent organizations. Thus, it is necessary that managers not only be aware of the motives behind the sacrifices volunteers make and their level of satisfaction with the activities in which they're asked to engage, but also the factors that prompt and maintain volunteers' committed involvement (Green & Chalip, 2004; Trauntvein, 2011).

Green and Chalip's (2004) volunteer commitment model conceptualizes certain paths to establishing volunteer commitment in an effort to understand the best means of building and maintaining a useful level of volunteer dedication. This model suggests that volunteers' satisfaction with their volunteering experience has a positive impact on their commitment to an organization (Elstad, 1996; Farrell, Johnston, & Twynam, 1998); their levels of satisfaction are driven by the benefits and community attachment they gain from the act of volunteering (Green & Chalip, 2004). Findings from Green and Chalip's (2004) research deliver valuable information regarding the volunteering

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phenomenon. However, researchers (e.g., Aydinli *et al.*, 2015; Aydinli, Bender, Chasiotis, Cemalcilar, & van de Vijver, 2014; Perugini, Conner, & Gorman, 2011) have argued that relying entirely on self-reported benefits and motives may not be sufficient to help volunteer program managers adequately understand the motivational antecedents of long-term volunteerism.

Research has shown that including generativity in a model substantially increases the predictive utility of determining who will provide sustained volunteer service (e.g., de Espanés, Villar, Urrutia, & Serrat, 2015; Hart, McAdams, Hirsch, Bauer, 2001; Rossi, 2001). Originally developed by Erikson (1963; 1982), generativity is a concept used to describe "the concern in establishing and guiding the next generation" (Erikson, 1963, p. 267). Research has shown that generativity is "an important motivational force" (Hart *et al.*, 2001, p. 210) in volunteering for a wide range of activities, including health-related efforts, school or youth-oriented work, environmental stewardship, and any other type of service performed for an organization or charity (Rossi, 2001; Wells & Pillemer, 2015). Thus, generativity may be an effective predictor of the psychologically relevant benefits of volunteerism, as well as the likelihood of sustained voluntary service.

I.2 Volunteerism in Natural Resource Management Agencies

The past quarter-century's fiscal constraints have led natural resource management agencies (e.g., U.S. Forest Service, and Bureau of Land Management) to be increasingly dependent upon volunteer work as a critical resource (Bruyere & Rappe, 2007; Silverberg, 2004). For example, by 2015, the National Park Service (NPS) had a significant maintenance backlog of nearly $12 billion, which resulted in reduced

resource protection, deferred maintenance, and trail and road closures (National Park Service, 2015a). The NPS relied on the use of volunteers to maintain services and achieve goals (Connally, 1982; Follman, 2015; Rettie, 1995; Runte, 2010). There is an increasing need for more extensive management of natural resources, because even while budgets continue to decline, more and more people are engaging in outdoor recreational activities (Betz, English, & Cordell, 1999; Bremer & Graeff, 2007). For instance, Cole (1996) estimated that within the past three decades, recreation use in wilderness areas underwent a six-fold increase. Considering the need to engage more volunteers in day-to-day operations, it is very important for managers to understand the factors that foster motivation and commitment in their volunteers (Silverberg, 2004).

Natural resource management agencies provide volunteers with a wide variety of natural resource-related opportunities, such as monitoring endangered species, restoring ecosystems, and maintaining trails (Busser & Carruthers, 2010; Hunter, 2004; Ryan, Kaplan, & Grese, 2001; Strigas, 2006; Tedrick & Henderson, 1989). Fortunately, as the reliance on volunteers is on the rise, so has the number of volunteers and the hours they contribute (Bruyere & Rappe, 2007). For example, in 2013, Cuyahoga Valley National Park had 6,281 volunteers who donated 208,895 hours, which were 7% and 3% increases, respectively, over 2012 (National Park Service, 2015b).

As both the demand for and amount of volunteers increases, it is essential that agency managers understand certain psychological aspects of their volunteers, such as the reasons why they choose to dedicate their time and effort, their expectations regarding the volunteering experience, and how well they emotionally bond with the

organizations (Bruyere & Rappe, 2007). A lack of understanding of their psychology

(e.g., their motivation, satisfaction, and level of commitment) could restrict

management's ability to efficiently administer their programs. What is worse, it could

result in substantial cost (Measham & Barnett, 2008; Weston, Fendley, Jewell, Satchell,

& Tzaros, 2003). According to Gidron (1978), "Volunteer work which is not regular

and sustained may cause more harm than good to the service recipient.... It becomes

important to develop knowledge about the motivations of volunteers to work on a

sustained basis" (p. 18). Although volunteers "give their time freely to help others"

(Musick & Wilson, 2008, p. 3), they shouldn't be considered a "free" labor source

(Jacobsen, Carlton, & Monroe, 2012). Volunteers must be recruited, trained, retained,

and recognized for their achievements; every one of these phases demands financial and

personnel resources (Jacobsen *et al.*, 2012). Natural resource management agencies

regularly face challenges associated with using volunteer services, such as high

volunteer turnover and unreliability (Follman, 2015; Leslie, Velez, & Bonar, 2004).

Situations like this require agencies to expend extra effort to recruit and train new

volunteers (Cheung, Tang, & Yan, 2006; Galindo-Kuhn & Guzley, 2001).

    Understanding certain psychological aspects of environmental volunteers could be

of fundamental importance to ensuring their satisfaction and, ultimately, a long-term

commitment to their natural resource volunteer program (Clayton & Myers, 2009;

Schultz, 2011; Wright *et al.*, 2015). However, most public agencies do not evaluate their

programs with this thought in mind (Kapos *et al.*, 2008; Margoluis, Stem, Salafsky, &

Brown, 2009), even though there is evidence suggesting that public administrators need

basic guidance for designing, implementing, and maintaining proper volunteer programs (Silverberg, 2004; Wright *et al.*, 2015).   Given the monetary value of volunteer contributions, along with the potential impact that the rate of turnover can have on volunteer-dependent organizations, it is critical for natural resource management agencies to understand the various factors that may help them recruit, satisfy, and retain environmental volunteers (Jacobsen *et al.*, 2012).

I.3 Nature of the Problem

Although a considerable amount of work has been written on the topic of volunteerism, gaps in the research still exist. Specifically, past research on volunteering is characterized by four major gaps, all of which will be addressed in the current research.

Initially, the literature has not adequately studied volunteerism in the natural resource arena (Jacobsen *et al.*, 2012; Measham & Barnett, 2008; Wright *et al.*, 2015). Past research has focused mainly on volunteers in the social and human-services sectors (Jacobsen *et al.*, 2012; Omoto & Snyder, 2002; Wright *et al.*, 2015). Although an increasing number of researchers has begun paying attention to studies on volunteerism for natural resource management agencies (Schuett, Kyle, Leitz, Kurzawski, & Lee, 2014), they mainly have focused on the reliability of volunteers' work (e.g., McLaren & Cadman, 1999) and management techniques for utilizing volunteer labor (e.g., Leslie *et al.*, 2004). Considering the amount of time and effort that individuals have contributed to natural resource activities, limited research has investigated the psychological aspects of environmental volunteers (Bachman, 2014; Bruyere & Rappe, 2007; Weston *et al.*, 2003; Wright, *et al.*, 2015).

Secondly, in examining the greater body of volunteerism research, factors essential to retaining and sustaining volunteers have received relatively limited attention. As noted above, the vast majority of the research focuses on why people initially become involved in volunteer activities. Although this body of work has been useful, it does not suggest the factors associated with volunteers' commitment to a particular volunteer organization. Volunteer retention is a major challenge for volunteer organizations, as reflected by their high turnover rates (Galindo-Kuhn & Guzley, 2001; Wong, Chui, & Kwok, 2011). Thus, it is necessary to investigate the factors that motivate long-term volunteerism.

Another area that requires further examination is the relationship between generativity and volunteerism. Although previous volunteering models have examined the pathways leading to volunteer commitment, the topic of generativity as a driving force behind sustained volunteerism has been largely neglected (de Espanés *et al.*, 2015). Moreover, the literature on the relationships among generativity and certain specific aspects of volunteerism (e.g., motivation, satisfaction, and commitment) is even less developed (de Espanés *et al.*, 2015).

Fourthly, another area that has seen little research is the influence of volunteers' socio-demographics (e.g., age, gender, and education level) on the psychological aspects of volunteering (Weston, *et al.*, 2003; Jacobsen *et al.*, 2012). Unlike motive theory, which explains why people decide to volunteer, sociological perspectives use an individual's status within the social structure to answer questions regarding how they become a volunteer, what benefits they receive from the experience, and why certain

needs are more important than others (Musick & Wilson, 2008). Bachman (2014)

suggested that socio-demographic categories (e.g., education level) should be considered

as explanatory variables in volunteering behavior.

Therefore, given these gaps in the literature, there is a need to develop a more

comprehensive model to examine these environmental volunteers. The proposed model

would expand upon previous research by incorporating motivation, satisfaction,

generativity, socio-demographics, and the combined effect of these factors on volunteers'

commitment.

I.4 Purpose of the Study

In response to these limitations, the purpose of this research was to develop a

comprehensive model to examine the effects of volunteers' motivation, satisfaction, and

generativity on volunteer commitment in a natural resource-based volunteering context.

Furthermore, this work examined if environmental volunteers with various socio-

demographic characteristics experienced volunteering differently from one another.

I.5 Research Questions

Previous research on volunteerism has examined how volunteers' motivation and

levels of satisfaction influence their organizational commitment. This study improved

upon the current models, (e.g., Penner, 2002; Green & Chalip, 2004) by adding a

measure of generativity (see Figure 1). In addition, the socio-demographic differences

that exist among volunteers were also studied. This research proposed a more

comprehensive model of volunteerism that can assist natural resource management

agencies in improving the design, implementation, and maintenance of volunteer programs.

Based on the theoretical and empirical evidence collected, this investigation was premised on two main research questions and several key hypotheses:

Research Question 1: Can the commitment of those volunteering for natural resource management agencies be attributed to their motivation, satisfaction, and generativity?

- Hypothesis 1 (H1): Volunteers' motivation positively affects volunteer satisfaction.

- Hypothesis 2 (H2): Volunteers' motivation positively affects volunteer commitment.

- Hypothesis 3 (H3): Volunteers' satisfaction positively affects volunteer commitment.

- Hypothesis 4 (H4): Volunteers' generativity positively affects volunteer motivation.

- Hypothesis 5 (H5): Volunteers' generativity positively affects volunteer satisfaction.

- Hypothesis 6 (H6): Volunteers' generativity positively affects volunteer commitment.

Research Question 2: Do people with various socio-demographic characteristics (e.g., age, gender, education level, and employment status) experience volunteering for natural resource management agencies differently from one another?

- Hypothesis 7 (H7): Volunteers' motivation, satisfaction, commitment, and generativity vary based on age.

- Hypothesis 8 (H8): Volunteers' motivation, satisfaction, commitment, and generativity vary based on gender.

- Hypothesis 9 (H9): Volunteers' motivation, satisfaction, commitment, and generativity vary based on education level.

- Hypothesis 10 (H10): Volunteers' motivation, satisfaction, commitment, and generativity vary based on employment status.
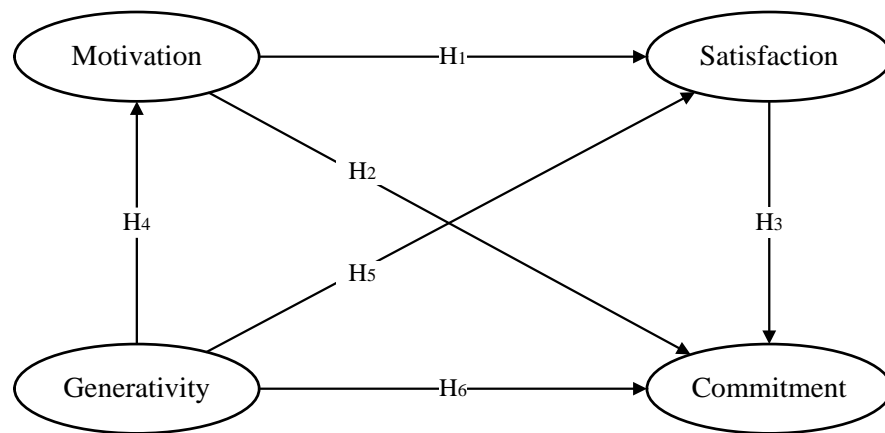
Figure 1 Proposed Conceptual Model for Volunteerism

This research refines the multi-dimensional scales of volunteers' motivation, satisfaction, commitment, and generativity as they have been applied in previous studies, in order to fit the context of environmental volunteering.

I.6 Need for the Study

Despite evidence of environmental volunteering's effect on the success of agency and organizational programs (Ryan *et al.*, 2001), there is very little empirical literature concerning the specific psychological aspects of these volunteers. Because of the increasing pressure on nature resource management agencies' budgets, their reliance on volunteers will continue to grow (Follman, 2015). Obtaining an improved understanding of who volunteers are and why they are engaged in this activity will help to sustain the protection of our natural resources. Though previous studies have examined the concepts of volunteer motivation, satisfaction, and commitment, this study filled a gap in the literature by exploring the concept of generativity, specifically as it applies to volunteers in natural resource management agencies. Moreover, this study will investigate various socio-demographic determinants of volunteerism and how these variables contribute to the proposed model. This information helps to identify alternative explanations for differences in volunteers' motivations and participation. These data also assists agencies in recruiting and retaining these people's services.

I.7 Limitations of the Study

Despite the contributions that this study makes to the body of environmental volunteering literature, it should be noted that there are certain limitations to this study. Methodologically, this study was confined by its exclusive use of volunteers in the Texas Parks and Wildlife Department's volunteer database. Therefore, caution should be used when employing this study's results to the interpretation of phenomena related to other nonprofit organizations or the greater population. However, these findings may

hold true when applied to similar agencies and organizations that share certain

characteristics with the Texas Parks and Wildlife Department. In addition, some of the

email addresses listed in the database were spam or incorrect which eliminated

individuals from the database. Another drawback was that the study used self-reporting

measures to assess the variables (motivation, satisfaction, commitment, generativity, and

socio-demographics). Recollection and the social desirability of the topics (e.g., the

amount of time spent volunteering and motivations for volunteering) could also be

considered a limitation of this study. This research used a cross-sectional study design

to measure respondents' ratings of the psychological aspects of volunteerism. This

cross-sectional study design only allowed the researcher to find significant correlations

among the variables used, even though the conceptual model for this research indicated

the direction of causation.

I.8 Definition of Terms

Volunteerism: "long-term, planned, prosocial behaviors that benefit strangers and occur

within an organizational setting" (Penner, 2002, p. 448).

Volunteers: individuals who voluntarily contribute their time to helping others or

offering assistance to an organization, without expecting any tangible return (Penner,

Dovidio, Piliavin, & Schroeder, 2005). In this study, all volunteers served the Texas

Parks and Wildlife Department.

Volunteer motivation: one or more psychological or social incentives (expressed values,

understanding, self-enhancement, protectiveness, career needs, or social rewards) that

volunteers seek when they volunteer to help others or undertake a service (Clary *et al.*, 1998).

Volunteer satisfaction: the fulfillment that volunteering experience provides to participants (Clary *et al.*, 1998).

Organizational commitment: a psychological strength that inspires volunteers to be loyal to the organizations they serve (Asah & Blahna, 2012).

Generativity: the focus of the seventh stage of Erikson's psychosocial development. It has been conceptualized as "primarily the concern in establishing and guiding the next generation" (Erikson, 1963, p. 267).

CHAPTER II

REVIEW OF LITERATURE

This study sought to investigate volunteering in a natural resource management agency setting (Texas Parks and Wildlife Department) by examining the relationship between motivation, satisfaction, commitment, generativity and socio-demographics. Previous research has examined several of these variables separately to explain volunteer behavior but not in one study or with volunteers in the natural environment. This research aimed to gain a deeper level of understanding of the psychological and socio-demographic characteristics of individuals who volunteered in this type of setting. The current literature describes past research and key variables that were included in a proposed model.

II.1 Volunteering in General

To understand the phenomenon of volunteerism, it is necessary to define this behavior. However, formal definitions of volunteering are widely varied, due to the vast spectrum of work it can entail and the complex and changing structure of most volunteer organizations (Cuskelly, Hoye, & Auld, 2006; Winniford, Carpenter, & Grider, 1995). This research used a definition developed by Penner (2002): "volunteerism can be defined as long-term, planned, prosocial behaviors that benefit strangers and occur within an organizational setting" (p. 448). Such a definition distinguishes volunteering from informal helping, which takes such forms as attending a religious service or taking care of family members (Crane, 2013; Thoits & Hewitt, 2001; Van Willigen, 2000).

Consistent with this definition, this research investigated individuals who volunteered for the Texas Parks and Wildlife Department and queried them about their volunteering experiences.

II.1.1 Motivation

In contrast to paid employees who expect financial remuneration (Baldamus, 1961), volunteers seek intangible benefits from engaging in volunteer activities (e.g., the opportunity to learn new skills, certain occupational advantages, positive experiences with nature, etc.) (Monga, 2006; Weston *et al.*, 2003). The consequences of failure to meet such needs include low satisfaction among volunteers, high turnover rates for the program, increased costs for the agency/organization, and loss of valuable resources (Wright *et al.*, 2015). Therefore, understanding volunteers' motivation becomes extremely important for recruiting and sustaining volunteer activity (Eça de Abreu, Laureano, Syed Alwi, da Silva, & Dionísio, 2015; Wright *et al.*, 2015). The extent to which a person's motives to volunteer match a person's actual experiences will determine how satisfied they are with the experience and the potential for continued involvement with the agency/organization (Clary & Snyder, 1999; Katz, 1960; Omoto & Snyder, 2002). This proposition can be used as a valuable guideline for managing and training volunteers, as well as designing and sustaining environmental projects (Bruyere & Rappe, 2007; Ryan *et al.*, 2001; Weston *et al.*, 2003; Wright *et al.*, 2015).

The Volunteer Functions Inventory (VFI) is the most broadly applied scaled tool for determining volunteers' motivation (e.g., Clary & Snyder, 1991; Clary *et al.*, 1998; Clary, Snyder, & Ridge, 1992). According to Smith, Bruner, and White (1956) and Katz

(1960), functional theories suggest that individuals become involved in volunteering activities because they are driven by the desire to fulfill personal or social goals that otherwise would go unsatisfied in their daily lives. Based on these functional theories, Clary *et al.* (1998) developed the Volunteer Function Inventory (VFI), which proposes a multifactor motivational perspective when investigating the personal and social motivations for volunteerism (Principi, Schippers, Naegele, Rosa, & Lamura, 2016).

The focus of the functional approach is that even though the activities in which individuals participate appear quite similar on the surface, the motivations of the individuals themselves could be considerably different (Clary *et al.*, 1998). The same behavior can serve dissimilar psychological functions and multiple personal goals for various individuals (Clary *et al.*, 1998). The functional approach proposes that individuals are not motivated by a single psychological incentive to participate in the same volunteer activity (Jiménez, Fuertes, & Abad, 2010). For instance, volunteers could be driven by the desire to express their personal social values, learn new skills, or increase their social connections. Volunteer motivations could be multi-faceted (Chen & Morrow-Howell, 2015).

Clary and colleagues (1996) developed the VFI instrument, which includes six motivational functions. They determined that the following six main motivational functions were served by volunteerism, across many volunteer capacities: (1) Values – the desire or need to express or act on values related to altruistic and humanitarian concerns; (2) Understanding – the desire or need to learn and practice new skills and knowledge; (3) Social – the desire or need to build or strengthen relationships with

others; (4) Career – the desire or need to gain career-related benefits though volunteer

experiences; (5) Protective – the desire or need to protect the ego from negative self-

perceptions derived from guilt over being more fortunate than others, and (6)

Enhancement – the desire or need for personal growth and development.

II.1.2 Satisfaction

The concept of volunteer satisfaction has increasingly drawn the attention of

academia, due to concerns related to sustaining volunteer support (Giannoulakis, Wang,

& Felver, 2015; Jacobsen *et al.*, 2012; Trauntvein, 2011; Wright *et al.*, 2015).

Researchers have found volunteer satisfaction to be an important element of volunteer

participation (e.g., hours spent volunteering, commitment to an organization, and length

of service) (Chacón, Vecina, & Dávila, 2007; Finkelstein, 2007; Wong *et al.*, 2011;

Trauntvein, 2011; Jacobsen *et al.*, 2012; Wright *et al.*, 2015). Conversely, low volunteer

satisfaction may negatively impact volunteer retention and result in high turnover rates

in volunteer programs (Giannoulakis *et al.*, 2014; Wright *et al.*, 2015). Therefore, it is

commonly assumed that satisfaction is the most essential factor in maintaining a stable

body of volunteers (Elstad, 1996; Farrell *et al.*, 1998; Trauntvein, 2011).

The way volunteer satisfaction is measured has varied substantially (Trauntvein,

2011). Most studies have adopted a single dimension of satisfaction (Chacón *et al.*,

2007). For example, Tschirhart and colleagues (2001) asked volunteers for AmeriCorps

to rate their satisfaction with their volunteer experience by using a single item. Jamison

(2003) assessed the overall satisfaction of volunteers who served in agencies associated

with the Community Human Service Partnership in Leon County, Florida. A few

researchers have preferred to use a multi-faceted approach to examining volunteer

satisfaction. They have identified a number of factors influencing volunteer satisfaction,

including the fulfillment of personal motives, gratification from a particular task, and

satisfaction with the organization (e.g., Galindo-Kuhn & Guzley, 2001; Silverberg,

Marshall, & Ellis, 2001; Wright *et al.*, 2015).

Job satisfaction is defined by Smith, Kendall, and Hulin (1969) as "feelings or

affective responses to facets of the situation" (p. 6). Galindo-Kuhn and Guzley (2001)

reviewed 16 articles, focusing specifically on volunteer job satisfaction, as part of an

effort to develop a measurement to measure this concept. The literature served to

provide a framework for their measurement, by helping them to identify factors that

needed to be considered. They named this measure the Volunteer Job Satisfaction Index

(VSI) and argued that VSI is "a multi-faceted measure of job satisfaction specifically

applicable to organizations which rely predominantly upon volunteer workers" (p. 45).

The authors tested the validity of the VSI using a population of 327 Girl Scout

volunteers in California. A factor analysis yielded four dimensions of volunteer job

satisfaction: (1) organizational support, which assessed volunteers' satisfaction with the

support mechanisms provided by the organization to assist them in performing their

assignments (Cyr & Dowrick, 1991; Gidron, 1983; 1985; Hunter, 2004; Ozminkowski,

Supiano, & Campbell, 1990; Paradis & Usui, 1989); (2) participation efficacy, which

determined volunteers' satisfaction with their ability to accomplish the tasks assigned to

them and the benefits those assignments brought to the individuals or organizations

being served (Trauntvein, 2011); (3) empowerment, which evaluated volunteers'

satisfaction with the level of control they had over their volunteer experience (e.g., the accessibility of information and flexibility in volunteer activities; Hunter, 2004; Trauntvein, 2011); and (4) group integration, which considered volunteers' satisfaction with the social aspect of the relationships formed with their fellow volunteers and between the volunteers and paid staff (Gidron, 1985; Ozminkowski *et al.*, 1991; Stevens, 1991).

II.1.3 Commitment

There is significant interest in methods of retaining a satisfied and committed volunteer workforce because agencies/organizations have increasingly come to rely on the service of volunteers (Andrew, 1996; Elstad, 1996; Farrell *et al.*, 1998; Mowday, Steers, & Porter, 1979; Williams, Dossa, & Tompkins, 1995). Consequently, organizational commitment has been studied widely as an important construct for understanding a variety of behaviors and behavioral intentions within the context of for-profit organizations (Cuskelly, 1995). Also, as a response to volunteers giving their time, skills, and expertise in a formal organizational context (Penner, 2002), the construct of organizational commitment (developed to assess the psychology of paid workers) has been adapted for use in understanding volunteer commitment (Trauntvein, 2011; Valéau, Mignonac, Vandenberghe, & Turnau, 2013). Past research has shown that organizational commitment is relevant to job performance, employee turnover, and absenteeism (Mathieu & Zajac, 1990; Mowday, Porter & Steers, 2013). For example, Jenner (1981) found that the organizational commitment of American Junior

League volunteers could be used to explain and influence the number of volunteer hours contributed.

Researchers have employed a number of different methods to examine the concept of organizational commitment (Boezeman & Ellemers, 2008; Morrow, 1983; Mowday *et al.*, 1979; Valéau *et al.*, 2013), building upon the distinct assumptions already developed regarding the general nature of commitment (Meyer & Allen, 1987). Among these postulates, behavioral and attitudinal approaches have had the greatest impact on commitment research (Meyer & Allen, 1987). From a social psychology standpoint, the behavioral approach views commitment as a tendency to continue a particular line of activity (e.g., Kiesler, 1971; Staw, 1977). By comparison, the attitudinal approach views commitment as a sense of attachment to an organization (Meyer & Allen, 1987). Adopting this definition of attitudinal commitment, Allen and Meyer (1990) theorized organizational commitment to be a psychological force that binds the employee to his or her organization, decreasing the possibility that the employee will voluntarily choose to leave. They also developed a scale called the Three Component Model of Commitment (Allen & Meyer, 1990; Meyer & Allen, 1991). This model has become the most widely used psychometric scale for measuring organizational commitment (Boezeman & Ellemers, 2008).

Meyer and Allen also identified three factors that contribute to the development of organizational commitment: affective, normative, and continuance commitment (Allen & Meyer, 1990; Meyer & Allen, 1991). Affective commitment is driven mainly by a positive emotional bond with an organization (O'Reilly & Chatman, 1986). Normative

commitment is motivated by a moral obligation and refers to a feeling of responsibility

to continue employment (Meyer & Parfyonova, 2010; Powell & Meyer, 2004).

Continuance commitment refers to instrumental ties between employees and the

organization (Boezeman & Ellemers, 2007; Meyer & Parfyonova, 2010; Powell &

Meyer, 2004). This third component is related to the "costs associated with leaving the

organization" (Meyer & Allen, 1991, p. 67); previous research has found this component

irrelevant to volunteer workers (e.g., Liao-Troth, 2001; Stephens, Dawley, & Stephens,

2004). This line of research has been explored because volunteers are individuals who

freely decide to deliver services to strangers without the promise of material benefits or

the threat of legal obligations (Cnaan, Handy, & Wadsworth, 1996).

II.1.4 Socio-demographic Characteristics

A range of socio-demographic variables including age, gender, race/ethnicity,

education, and occupational status have been shown to be related to the percentage of

people engaging in volunteering activities (Musick, Wilson, & Bynum, 2000; Plagnol &

Huppert, 2010; Wilson, 2000). According to the U.S. Bureau of Labor Statistics (2015)

35- to 44-year-olds had the highest volunteer participation rate (at 29.8%) in the United

States, while 20- to 24-year-olds had the lowest (at 18.7%). Participation rates by

gender show higher percentages for women (28.3%) compared with 22% for men.

Women's higher rate of volunteering was present across all age groups, educational

levels, and other major socio-demographic categories. From a race and ethnicity

perspective, Whites were the most likely to volunteer (26.7%), followed by African

Americans (19.7%), Asians (18.2%), and Hispanics (15.5%).

Volunteer rates increased with education level. Specifically, 39.4% of college graduates volunteered in 2014, followed by 27.3% of persons with some college or an associate's degree, and 16.4% of persons with a high school diploma. Employed persons were more likely to volunteer than unemployed persons or those outside the paid labor force (e.g., homemaker); the rates of participation were 27.5%, 24.0%, and 21.8%, respectively in 2014 (U.S. Bureau of Labor Statistics, 2015).

Although studies have addressed the relationships among the various socio-demographic variables and an individual's engagement with volunteering activities, the connection between these demographic attributes and specific aspects of volunteering (such as motivation, satisfaction, commitment, and generativity) have not been studied sufficiently. Research from Trauntvein (2011) examined the influence of volunteers' socio-demographics (age, education, gender, and race/ethnicity) on volunteer motivation, satisfaction, organizational identity, and level of involvement. He found that younger volunteers were more likely than older volunteers to be motivated by career-associated reasons, and less likely to continue to volunteer. Female respondents were more involved than males and volunteered for a longer duration. People with children were more likely to be motivated by the personal benefits than were people without children in the home. People of color volunteered more than Whites and those with less than a four-year college degree reported a higher level of involvement than those with a college degree or more.

II.1.5 Generativity

In addition to socio-demographic variables explaining volunteer behavior, other

variables linked to age and the life course have been examined in the literature. Derived

from Erikson's theory of psychosocial development (1963; 1982), generativity is one of

the eight developmental tasks that typically occurs during middle adulthood (ages 40 to

65 years). Erikson conceptualized generativity as "primarily the concern in establishing

and guiding the next generation" (Erikson, 1963, p. 267). Success in negotiating the

crisis of generativity leads to the virtue of care, which is "to care for someone," "to care

to do something," or "to take care of" someone or something (MacDermid, Franz, &

DeReus, 1998, p. 206). As a result, the person becomes more confident when dealing

with other developmental challenges that emerge during the consequent stages (Villar,

2012).

The controversy inherent to the concept of generativity is its connection to a

particular stage of life (Agostinho & Paço, 2012; de Espanés *et al.*, 2015). Researchers

(e.g., Son & Wilson, 2011) have argued that Erikson (1963) oversimplified this concept

by associating life interests with a typical point in the life course. Empirically,

psychologists (e.g., Bradley, 1997; Kotre, 1984; McAdams & Logan, 2004) have found

that individuals experience generative concern during various life stages. They

concluded that generativity could have an influence throughout a person's life, instead of

being substituted by challenges faced during subsequent life stages. To date,

generativity in these age-based sub-groups has not been sufficiently explored in

volunteering research (Frensch, Pratt, & Norris, 2007; Villar, 2012). This study will fill

this gap by expanding the conceptualization of generativity to include a wide range of

participants from late adolescence to older adulthood.

Several scales have been established to measure generativity. The most extensively used measurement is the Loyola Generativity Scale (LGS), developed by McAdams and de St. Aubin (1992). The LGS is a four-point Likert scale consisting of twenty items. Example items include: "Others would say that I have made unique contributions to society," "I have a responsibility to improve the neighborhood in which I live," and "People come to me for advice." McAdams and de St. Aubin (1992) tested the validity of this scale on a sample of 149 adults ranging in age from 19 to 68 years, and a sample of 165 college undergraduates. Their results showed that the LGS had a high internal validity, strong homogeneity, and test–retest reliability.

II.1.6 Generativity and Volunteerism

Generativity is a major theoretical concept associated with volunteerism (Fisher, Day & Collier, 1988; Larkin, Sadler, & Mahler, 2005; Narushima, 2005; Scott, Reifman, Mulsow, & Feng, 2003; Snyder & Clary, 2004; Son & Wilson, 2011; Theurer & Wister, 2010). Social scientists have assumed that generative concern leads to behaviors that involve engagement in public sector activities, such as volunteer endeavors and community activities, as well as participation in religious and political organizations (Frensch *et al.*, 2007; McAdams & de St. Aubin, 1992). Volunteerism appears to be a highly appropriate means of expressing generative concerns (Wells & Pillemer, 2015). This comports with the definition of generativity, in that pro-social behavior is of critical importance to the maintenance and development of communities and the quality of life of future generations (de Espanés *et al.*, 2015; Putnam, 2000; Wells & Pillemer, 2015).

In spite of the limited amount of research in this area, studies on generativity and volunteerism have largely supported this form of expression. For example, Kleiber and Nimrod (2008) studied a group of 20 well-educated members of a local "learning in retirement" community, and found that nearly all of the participants expressed generative concerns. They showed interest in promoting "the welfare of the community," ensuring "the future success of the next generation," and creating "a legacy of sorts" (p. 83). Scott, Reifman, Mulsow, and Feng (2003) compared four groups of seniors and their levels of generativity. The results demonstrated that "miscellaneous volunteers" who volunteered in a variety of fields (e.g., library, church) scored the highest levels of generativity. However, the samples used for these two studies were restricted to older adults. Rossi (2001) conducted a study on a nationwide sample of the U.S. population (N = 2,886), and found that higher levels of generativity were linked to more hours per month spent volunteering. However, this study adopted a cross-sectional design. Therefore, the researcher was not able to determine a cause and effect relationship between generative concern and volunteering behavior.

II.2 Environmental Volunteering

In this study, the term "environmental volunteering" was used to describe the prosocial behavior of freely giving one's time or skills, or otherwise providing a service to an organization or group supporting an environmental cause (Randle & Dolnicar, 2009).

A wide range of organizations are dependent upon volunteers to help them achieve their environmental objectives; the opportunities these organizations provide are many

and varied (Bruyere & Rappe, 2007; Randle & Dolnicar, 2009). Based on a review of

the predominant environmental volunteering opportunities in Australia, Measham and

Barnett (2008) concluded that there are five principal modes of environmental

volunteering activities: (1) activism: politically-driven environmental campaigning, (2)

education: sharing information about certain species or the natural environment, (3)

monitoring: closely watching a particular plant or animal species and its community, (4)

restoration: preserving and protecting natural resource projects in degenerated

environments, and (5) sustainable living: implementing sustainability in daily life.

The researchers argued that these modes were relevant within an international

context. Consistent with this definition of environmental volunteering, this research

investigated individuals who voluntarily donated their time and skills, or otherwise

provided services to environmental causes by working with the Texas Parks and Wildlife

Department.

II.2.1 Motivation

There is limited research that applies the functional approach to understanding the

various factors that motivate people to become environmental volunteers (Bruyere &

Rappe, 2007). A comprehensive review of the literature found only a few articles.

Besides the six categories developed by Clary and colleagues (1996; 1998), these studies

(e.g., Asah & Blahna, 2013; Jacobsen *et al.*, 2012; Schuett *et al.*, 2014; Wright *et al.*,

2015) also supported the use of other functions to attract volunteers.

Ryan and colleagues (2001) focused on the relationships among environmental

volunteers' motivations and their commitment. They selected a sample of 148 long-term

volunteers from three environmental stewardship programs in Michigan. Participants were requested to rate how well certain statements described their desire to become environmental volunteers. Their responses were categorized into five factors. Two motivations were obtained from the Volunteer Functions Inventory (VFI; Clary *et al.*, 1998): the formation of social connections and learning about nature. The one motivation specific to environmental volunteerism was *Helping the environment*, which reflected the volunteers' desire to restore natural areas and see tangible improvements in the environment. Another motivation, summarized as *Project organization*, included the desire or need to work for a well-organized project. Finally, the motivation described as *Reflection* referred to the desire or need to reflect and feel peace of mind through volunteer activities.

Bruyere and Rappe (2007) incorporated items from the VFI (Clary *et al.*, 1998) and scales designed in other environmental volunteerism research into a survey of 401 individuals who had voluntarily served a natural resource organization. They found that volunteers were motivated by desires to help the environment, express their values, learn about nature, promote social connections, work for an organization that uses their time and efforts efficiently, and gain career advantages. Another motivation, described as "user," referred to the opportunity to work at a particular area that they enjoyed visiting, and the benefits associated with enhancing their own future recreation experiences.

Jacobsen, Carlton, and Monroe (2012) conducted an Internet survey of 569 volunteers for the Florida Fish and Wildlife Conservation Commission (FWC). They found that the strongest motivation for volunteering was helping the environment,

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followed by learning about nature, enhancing areas that volunteers used or enjoyed, and expressing esteem and values. Moreover, volunteers' motivations differed based on their age and gender (e.g., females placed a higher importance than males on helping the environment).

Asah and Blahna (2013) assessed the motivations of urban conservation volunteers. Unlike most other researchers who directly applied VFI (Clary *et al.*, 1998), they designed a psychometric scale based on their interviews of key volunteers. These researchers found three main factors explaining why volunteers continued to volunteer, such as helping the environment, being part of and building community, and promoting social interaction.

Schuett *et al.* (2014) explored licensed recreational anglers' motives for volunteering with fishing and conservation organizations. They found that motivations for volunteering were centered on helping/learning about the environment, meeting new people, and influencing policy decisions.

Wright and colleagues (2015) studied volunteers from the Second Southern African Bird Atlas Project (SABAP2); their results revealed that the desire or need to engage in an environmental project as a recreational activity and/or spend time in nature were very important motives among volunteers. Other motives involved acting on important personal values, personal development, strengthening social relationships, being involved in a well-run project, or developing one's career through volunteering.

These studies on environmental volunteering demonstrate that there are a variety of motivating factors and perceptions related to the benefits that drive individuals to

perform this form of pro-social behavior. These factors can be grouped into two major

categories: personal (e.g., user and reflection) and environmental desires (e.g., restoring

natural resources) (Schuett *et al.*, 2014).

In order to comprehensively understand the possible motives that lead people to

participate in environmental volunteering, this study expanded upon the use of the VFI

(Clary and colleagues, 1998), and added items derived from the following research

studies specific to environmental volunteering. These motivational items included:

expressing values, learning about nature, exploring opportunities for career advancement,

expanding social contacts, helping the environment, and enjoying proper project

organization (Bramston, Pretty, & Zammit, 2011; Bruyere & Rappe, 2007; Jacobsen *et

al.*, 2012, Wright *et al.*, 2015).

II.2.2 Satisfaction

Wright and his colleagues (2015) pointed out that only a few research programs

have investigated the satisfaction of volunteers within the context of environmental

volunteering. Also, fewer studies have explored the relationships among volunteer

satisfaction, volunteer participation, (e.g., involvement level, duration, and time spent

volunteering), and future intention to continue as a volunteer with regards to

environmental volunteers (Jacobsen *et al.*, 2012; Sander-Regier, 2013; Wright *et al.*,

2015). A comprehensive review of the literature resulted in very few studies being

found.

Jacobsen, Carlton, and Monroe (2012) investigated the motivation and satisfaction

of volunteers at the Florida Fish and Wildlife Conservation Commission (FWC). The

authors adopted a volunteer satisfaction index composed of seven items, (e.g., I would recommend volunteering with the FWC to others) which was derived from Stallings (1998). The results showed that the volunteers reported higher than average levels of satisfaction. A multiple regression analysis showed that volunteer satisfaction with their experience was an important driver of volunteer commitment, in terms of the number of hours volunteered per year and the number of years of service. Moreover, satisfaction itself was predicted by the motivations related to the project's organization and the possibility of learning about the environment. Motivations of helping the environment, advancing one's career, and increasing social opportunities also had direct effects on volunteer commitment. Jacobsen and colleagues (2012) suggested that parks and nature-based recreation organizations were able to improve their volunteers' level of commitment by promoting an understanding of the benefits of volunteering.

In a study using a qualitative approach (i.e., participation, interviews) Sander-Regier (2013) found that all of the volunteers who helped to build and manage the Ottawa Fletcher Wildlife Garden in Canada conveyed a sense of personal satisfaction relating to their volunteer experience. Satisfaction among these environmental volunteers was found to stem from the importance of the volunteer work, a sense of efficacy, the relationships among the volunteers, and the opportunity to learn.

In their study of volunteers with the Second Southern African Bird Atlas Project (SABAP2), Wright and colleagues (2015) assessed volunteer motivation, satisfaction with the program, and their attitudes and behaviors on nature conservation. Researchers conducted interviews with focus groups that consisted of the program's management,

other stakeholders, and volunteers. They used the fulfillment of specific motivations

(e.g., I enjoy atlasing because of the social time it provides) and overall satisfaction to

measure volunteer satisfaction. The findings from this study revealed that the majority

of volunteers in SABAP2 found their experience to be desirable, and that the motives

that attracted them to the program were satisfied. Moreover, the study showed that

motivations played an essential role in the volunteers' level of satisfaction. Volunteers

who were pleased with their experience were likely to spread positive messages to others

and advocate for nature conservation. This activity could promote the recruitment of

new volunteers and the building of social capital; however, correlations between

volunteer satisfaction and volunteers' roles as advocates were not analyzed in this study.

The above research has shown that significant correlations exist among volunteers'

motivation, satisfaction, and participation. Therefore, it is imperative that managers of

volunteers in environmental programs regularly assess the level of their volunteers'

satisfaction in order to sustain their volunteer force (Trauntvein, 2011; Wong *et al.*,

2011).

This study adopted the Volunteer Job Satisfaction Index (Galindo-Kuhn & Guzley,

2001) to evaluate volunteer satisfaction. Compared to the general concept of volunteer

satisfaction, the VSI is able to provide researchers and practitioners with information

regarding satisfaction/dissatisfaction within a specific domain (e.g., organizational

support) (Wong *et al.*, 2011).

II.2.3 Commitment

Despite the importance of volunteer commitment to the success of environmental

stewardship, commitment as a psychological phenomenon has rarely been studied or used to understand environmentally focused volunteers. Ryan and colleagues (2001) examined the relationship between volunteer commitment and motivation using a sample of 148 long-term volunteers from three environmental stewardship programs in Michigan. Their results revealed that motivations related to project organization and social incentives positively predicted commitment, while motivation of learning negatively predicted commitment. However, one shortcoming of this research was that researchers understood operational commitment as the duration and frequency of participation in the program, rather than as a psychological phenomenon that would provide insights into volunteers' behaviors and their general intentions (Asah & Blahna, 2013).

In a study of college students at a large urban Canadian university, McDougle and his colleagues (2011) assessed the relationships among factors that motivate young adults to volunteer for environment-related causes and their commitment to those causes (as measured by the percentage of time they invested in volunteering for environmental organizations). The researchers hypothesized that the motives that drive young adults to become environmental volunteers also affect the time they spend on volunteering. For instance, young adults who are primarily driven by egoistic volunteer motivations (e.g., to meet new people) would be likely to spend more time volunteering than those attracted by altruistic motives (e.g., to help the environment). Findings from a logistic regression analysis partially supported this hypothesis. Significant relationships were found between two egoistic volunteer motivations and the intensity of young adults'

volunteer commitment. Specifically, young adults who expressed social reasons for their volunteering were more likely to invest their volunteer time in environmental organizations. On the contrary, young adults who indicated that they volunteered to learn new skills or gain new perspectives on things were less likely to invest their volunteer time with environmental organizations. And altruistic motivations did not influence the amount of time young adults invested in environmental organizations.

In another study, Asah and Blahna (2013) adopted and modified the measure developed by Allen and Meyer (1990) to assess conservation volunteers' commitment to volunteering for urban conservation projects, and to explore how their motivations influenced general volunteer commitment. A factor analysis revealed two key factors of commitment: affective commitment and normative commitment. These factors had Cronbach's alphas of 0.89 and 0.79, respectively. A linear regression analysis showed that affective commitment was significantly influenced by motivations of social interaction and community; normative commitment was significantly predicted by motivations of ego defense, enhancement, and community. The primary motivation, helping the environment, only had a very slight influence on affective commitment.

Research has shown that environmental volunteers' commitment has been measured by different forms, and that each form may have different levels of correlation with volunteers' motivations. A better understanding of volunteer commitment and the relationships among commitment and other aspects of volunteerism (e.g., volunteer satisfaction) will provide volunteer program managers in the environmental field greater

insight into strategies for recruiting, satisfying, and sustaining volunteers (Valéau *et al.*, 2013).

The present research examined what motivates volunteers to commit to environmental stewardship by adopting the conceptualizations and means of measurement developed by Allen and Meyer (Allen & Meyer, 1990; Meyer & Allen, 1991; 1997).

II.2.4 Socio-demographic Characteristics

In examining the motivation, satisfaction, and commitment among various demographic groups of environmental volunteers, the literature only yielded only a few articles. For example, Ryan, Kaplan, and Grese (2001) studied volunteers from three environmental stewardship programs in Michigan. They found that a participant's age was unrelated to their level of commitment, or the frequency or duration of their volunteering. More recently, in a study of Florida natural resource agency volunteers, Jacobsen, Carlton, and Monroe (2012) found that volunteers' motivations differed with age and gender. Female volunteers were more likely than men to report motivations such as helping the environment, career advancement, general learning, and issues related to their personal values. Volunteers over age 40 were less likely to report motivations related to career or project organization. However, comparisons based on gender, age, and educational level found no significant differences in overall level of satisfaction. However, one limitation of this study was that they did not examine the relationships among volunteers' demographics and volunteer commitment. Beyond

these two studies, research on the influence of demographics on volunteer generativity within an environmental volunteering context has not been found.

II.2.5 Generativity

Many who volunteer for environmental programs are attracted by a desire to make a difference in the condition of the environment, and improve the world for future generations (Kaplan, 2000; Shandas & Messer 2008; Warburton & Gooch, 2007; Wells & Pillemer, 2015). This behavior is very future-oriented, requiring individuals to think beyond their own lives (Urien & Kilbourne, 2011). By volunteering for environmental organizations, they are able to display their concern for future generations (Handelman, 2013). Such pro-environmental behavior fits within the definition of generativity as it contributes to the betterment of future generations (Wells & Pillemer, 2015).

Despite the evidence for a connection between generativity and volunteerism, studies regarding generativity and environmental volunteerism have been sparse (Urien & Kilbourne, 2011). Warburton and Gooch (2007) conducted a qualitative study on a sample of older people who volunteered for environmental stewardship groups in Australia; the researchers' goal was to examine the relationship between generativity and pro-environmental behavior. Their findings suggested that participants perceived their environmental actions as a lasting legacy involving a long-term improvement in the environment, their personal growth regarding learning and understanding, and the passage of knowledge to a younger generation. This study provided empirical support for connections between generativity and environmental behavior in older adults who aged over 55. However, it was a small-scale study with only 44 participants.

Urien and Kilbourne (2011) found that in comparing individuals with varying levels of generativity, those with a higher level were more likely to act in an environmentally responsible manner. It is important to note, though, that researchers conducted this study based on a sample made up exclusively of university students.

Matsuba and his colleagues (2012) examined the relationships among identity, generativity and environmental activities by comparing participants who were and were not involved in these activities. They found that participants who had been involved in public environmental activities scored higher relative to their non-involved counterparts on all measures. Moreover, a positive connection between generativity and environmentalism was found. These researchers suggested that generativity was a psychological variable that could be important in the process of engaging in environmental activities.

A study by Wells and Pillemer (2015) demonstrated the need for environmental organizations to understand and meet their volunteers' strong desire to make a difference in the community (generativity); they argued that this would lead to long tenures and more satisfied volunteers.

Research exploring the link between generativity and environmentalism has supported this connection. However, the relationship between generativity and some particular aspects of environmental volunteering (e.g., motivation, satisfaction, and commitment) has yet to be studied sufficiently. Considering the high turnover rates among volunteers for environmental activities, it is critical to understand the role of generativity in engaging and maintaining volunteers in environmental programs. The

current study filled the gap in the literature by exploring the role of generativity as a

predictor of volunteers' motivation, satisfaction, and commitment within the context of

environmental volunteering.

CHAPTER III

METHOD

The procedures that were used in this study are discussed in the following sections. They include: a) Study Population, b) Data Collection, c) Measurement, and d) Treatment of the Data.

III.1 Study Population

This study's target population was volunteers for the Texas Parks and Wildlife Department (TPWD). The Texas Parks and Wildlife Department (TPWD) is the state agency responsible for overseeing the protection of wildlife and wildlife habitats. The department operates 114 state parks and historical sites, 51 wildlife management areas, eight fish hatcheries, and numerous field offices that are open to the public (Texas Parks & Wildlife, n.d.a). These protected areas and services offer visitors the opportunity to enjoy outdoor recreation, fishing, hunting, wildlife observation, and interpretative activities (Texas Parks & Wildlife, n.d.a).

The TPWD statewide volunteer program manager provided their volunteer database for the sampling frame. Overall, a total of 6,062 volunteers' names and email addresses were selected from the population of registered volunteers listed in the TPWD volunteer database. This study surveyed volunteers from five programs maintained by the TPWD. 1) Texas Master Naturalist Program, volunteers for the Texas Master Naturalist Program provide volunteer services in the form of educational activities, projects, or demonstrations to their communities about Texas's natural resources (Texas Parks &

Wildlife, n.d.b); 2) Outreach & Communications Program, volunteers for the Outreach & Communications Program teach youth how to fish (Texas Parks & Wildlife, n.d.c); 3) Coastal Fisheries: volunteers for the Coastal Fisheries assist with coastal expo event, help participants learn about Texas's coastal ecosystems, why they are so important, and how to protect them (Texas Parks & Wildlife, n.d.d), and 4) Wildlife Program: volunteers for the Wildlife Program are responsible for biological inventories, nature tracking, and youth hunting programs; 5) Texas State Parks Volunteer Program: volunteers for the Texas State Parks Volunteer Program enjoy a wide range of volunteer opportunities such as serving as park hosts, participating in state park friends' groups and support organizations, and assisting with visitor education, special events, environmental restoration, and maintenance. TPWD relies on all of these types of volunteers to manage and conserve the state's natural and cultural resources, as well as to provide recreational programs and attractive and safe parks (Texas Parks & Wildlife, n.d.e).

III.2 Data Collection

An online survey was administered using a web-based survey program called Qualtrics. Following the procedures recommended by Dillman, Christian, and Smyth (2014), the researcher employed a research design involving four contacts with respondents.

All active volunteers with an e-mail address in the TPWD database were contacted and asked to complete the volunteer survey. Having active status means that the volunteer had participated at least once in TPWD volunteer programs between the date

they registered and the date of data collection. Before the researcher administered the survey, a personalized email had been sent out to potential respondents introducing the study and inviting them to complete the online questionnaire. The initial email was sent in May of 2016. Non-deliverables and bad email addresses were removed from the database; those individuals received no further contact. Follow-up reminder emails with an associated URL link inviting participants to complete the online survey was sent during the subsequent three weeks (See Appendix A for correspondence). Each respondent was given a unique ID number that they must enter into the online system to access the questionnaire.

III.3 Measurement

This dissertation examined the relationships among volunteers' motivation, satisfaction, commitment, generativity, and selected socio-demographics by TPWD volunteers. A copy of the questionnaire is provided in Appendix B. This questionnaire includes several variables designed to measure respondents' motivation, satisfaction, commitment, generativity, socio-demographic characteristics, experience, and participation. The following sections will describe the various measurement tools for the conceptual model used in this study.

III.3.1 Motivation

Volunteer motivation was operationally defined as a rating on the Volunteer Functions Inventory (Clary *et al.*, 1998), the most reliable and appropriate set of scales for assessing volunteer motives (Okun, Barr, & Herzog, 1998). The set of items in the VFI conceptually assesses a diverse group of personal and social functions related to

volunteerism (Clary *et al.*, 1998). A total of thirty items comprise the original VFI; they measure six different motivational factors (Clary *et al.*, 1998). This study adapted four domains to measure volunteer motivations, including *Values, Learning, Career,* and *Social* (see Table 1). Each VFI domain was represented by four individual items. In past research, the internal consistency of each factor was acceptable, with the Cronbach's alpha for each of their respective groups of variables at above .70 (Bruyere & Rappe, 2007; Schuett, *et al.*, 2014; Trauntvein, 2011).

Two functions of volunteerism not included in the VFI are *Helping the environment* and *Project organization.* Items were developed from a literature review of the existing research on environmental volunteer motivations (e.g., Bruyere & Rappe, 2007; Ryan *et al.*, 2001; Weston *et al.*, 2003). *Helping the environment* is the desire or need to express or act on a personal concern for the environment (Bruyere & Rappe, 2007). *Project organization* is the desire or need to be involved with a well-run project (Ryan *et al.*, 2001). Both factors have shown good internal consistency, with Cronbach's alpha coefficients calculated above .70 in previous studies (e.g., Jacobsen *et al.*, 2012; Ryan *et al.*, 2001; Wright *et al.*, 2015). The psychometric sections were investigated using five-point Likert scale, ranging from 1 = ''Not At All Important'' to 5 = ''Extremely Important.''

Table 1 Volunteer Motivation Items

Values
- By volunteering I feel better about myself
- I volunteer because I can express my values through my work
- Volunteering makes me feel needed
- Volunteering allows me to live in a way that represents my values

Learning
- Volunteering lets me learn things through direct, hands-on experience
- Volunteering provides an opportunity for learning about specific plants/animals
- I volunteer because it allows me to learn about the environment
- Volunteering allows me to observe nature

Career
- Volunteering may help me to get a foot in the door at a place where I would like to work
- Volunteering allows me to make contacts that might help my career
- Volunteering helps me to explore possible career options
- Volunteering will help me to succeed in a chosen profession

Social
- My friends volunteer
- Volunteering provides me with the opportunity to meet new people
- Volunteering allows me to be with people like myself
- People I'm close to want me to volunteer

Helping the environment
- I volunteer because I am concerned about the environment
- Volunteering allows me to protect natural areas from disappearing
- I volunteer because I can help preserve natural areas for future generations
- I volunteer because I want to see improvements to the environment

Project organization
- Volunteering for TPWD provides me with the opportunity to work with good leaders
- I enjoy volunteering for TPWD because I know what is expected of me
- I enjoy volunteering for TPWD because I can be part of a well-organized project
- I volunteer because TPWD volunteer programs are well-organized

III.3.2 Satisfaction

Volunteer satisfaction refers to the emotional experience volunteers have during their volunteer experience (Clary *et al.*, 1998; Davis, Hall, & Meyer, 2003; Stevens, 1991). It is commonly assumed that volunteers' commitment to a service organization and activity is driven, at least in part, by their satisfaction with the volunteer experience (Finkelstein, 2007; Galindo-Kuhn & Guzley, 2001; Silverberg *et al.*, 2001). Volunteer satisfaction was measured by the following factors: *Organizational support, Participation efficacy, Sense of empowerment,* and *Group integration* (see Table 2). These four domains were derived from the Volunteer Satisfaction Index (Galindo-Kuhn & Guzley, 2001). The Cronbach's alpha coefficients for each of the VSI dimensions ranged from .75 to .91 (Galindo-Kuhn & Guzley, 2001). Respondents recorded their level of satisfaction with their current volunteer activities on a five-point Likert scale, ranging from 1 = "Very Dissatisfied" to 5 = "Very Satisfied".

Table 2 Volunteer Satisfaction Index Items

Organizational support
- My relationship with paid staff
- The way in which TPWD provides me with performance feedback
- The support I receive from TPWD
- The amount of information I receive about what TPWD is doing
- The amount of communication provided to me from paid staff
- How often TPWD acknowledges the work I do
- The amount of permission I need before I can do my job

Participation efficacy
- The difference my volunteer work makes
- The opportunities I have to learn new things
- The fit of the volunteer work to my skills and interests
- How worthwhile my contribution is

Sense of empowerment
- The access I have to information concerning TPWD
- The freedom I have in deciding where and how to volunteer
- The chances I have to utilize my knowledge and skills

Group integration
- My relationship with other volunteers
- The friendships I have made while volunteering with TPWD
- The amount of interaction I have with other volunteers
- The amount of time I spend with other volunteers

III.3.3 Commitment

In earlier research commitment has been defined as the strength of an individual's

identification with and involvement in a specific volunteer service organization (Porter,

Steers, Mowday, & Boulian, 1974). A high level of commitment is a key component of

many desirable outcomes, such as reduced turnover, greater investment, and enhanced

willingness to engage in behaviors that further the organization's goals (Becker, 1992;

Brockner, Siegel, Daly, Tyler, & Martin, 1997; Lawler & Yoon, 1996; Porter *et al.*,

1974). For this research, volunteer commitment was measured as affective commitment

or normative commitment (Allen & Meyer, 1990) (see Table 3). This study adopted the conceptualizations and means of measurement developed by Allen and Meyer (Allen & Meyer, 1990, 1997; Meyer & Allen, 1991). Affective commitment represents an identification with and involvement in the organization, and normative commitment refers to a feeling of responsibility to continue participation (Meyer & Parfyonova, 2010; Powell & Meyer, 2004). Previous research showed that the internal consistencies of the affective and normative commitments were high, with Cronbach's alpha coefficients above 0.7 (Asah & Blahna, 2013; Bang, 2007; Dawley, Stephens, & Stephens, 2005). Respondents reported their level of agreement with a series of statements using a five-point Likert scale ranging from 1 = "Strongly Disagree" to 5 = "Strongly Agree".

Table 3 Affective and Normative Commitment Items

Affective commitment
  - I would be very happy to spend many years with TPWD volunteer program
  - I do not feel "emotionally attached" to TPWD volunteer program
  - I enjoy discussing my TPWD volunteer program with people outside the agency
  - I feel as if TPWD volunteer program's problems are my own
  - I think that I could easily become as attached to another organization as I am to TPWD
  - I do not feel like "part of the family" at TPWD volunteer program
  - TPWD volunteer program has a great deal of personal meaning for me
  - I feel a strong sense of belonging to TPWD volunteer program

Normative commitment
  - TPWD volunteer program deserves my loyalty
  - I would feel guilty if I left TPWD volunteer program right now
  - I owe a great deal to TPWD volunteer program
  - I do not feel any obligation to remain with TPWD volunteer program
  - Even if it were to my advantage, I do not feel like it would be right to leave TPWD volunteer program right now

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III.3.4 Generativity

  Generativity was measured using the Loyola Generativity Scale (McAdams & de St. Aubin, 1992; see Table 4). The participants were assessed on a five-point Likert scale from 1 = "Strongly Disagree" to 5 = "Strongly Agree", rather than the four-point scale of McAdams and de St. Aubin (1992). This change was made because other scales in this questionnaire were designed with a five-point Likert scale.   Originally, the instrument consisted of 20 items. The present study used only 15 of the items employed in the original version. The reason for this selection was associated with the suitability and relevance of the variables to the participants of this research. The Loyola Generativity Scale has shown good internal consistency, with a Cronbach's alpha coefficient of .83 (McAdams & de St. Aubin, 1992); the convergent validity has also been satisfactory, with a high correlation to external measures of generativity (McAdams, de St. Aubin, & Logan, 1993).

Table 4 Loyola Generativity Scale Items

Generativity
- I try to pass along the knowledge I have gained through my experiences
- I try to be creative in most things that I do
- I do not feel like other people need me
- I think I would like to be a teacher
- I feel as though I have made a difference to many people
- I have made and created things that have had an impact on other people
- Others would say that I have made unique contributions to society
- Volunteering is the morally right thing to do
- I have important skills that I try to teach others
- In general, my actions do not have a positive effect on other people
- I feel as though I have done nothing of worth to contribute to others' lives
- I have made many commitments to many different kinds of people, groups, and activities in my life
- Other people say that I am a very productive person
- I have a responsibility to improve the neighborhood in which I live
- People come to me for advice

III.3.5 Socio-demographic variables

This study included eight socio-demographic items. Among them, four characteristics (gender, age, education level, and employment status) were associated with Research Question 2. This survey used interval (e.g., age), ordinal (e.g., education, income), and categorical variables (e.g., gender, race/ethnicity) to document participants' socio-demographics. For example, to measure gender, respondents were asked a dichotomous question (i.e., male or female). To measure age, respondents were asked to write down the year in which they were born. To measure educational level, respondents were given one of five choices: some high school or less, high school graduate, some college/technical school, university graduate, and post-graduate degree. To determine employment status, respondents were given a categorical variable: five choices and an "Other" option (with a request for specification). At the request of

TPWD, other socio-demographic variables were used to determine participants' profiles, i.e., household income, race/ethnicity, military status, and veteran status.

III.3.6 Experience and participation

To further characterize the volunteer experience, the questionnaire included questions about access to information related to TPWD volunteer programs, volunteer program(s) that participants had joined, the length an individual had volunteered for the TPWD, and the hours per month contributed to the TPWD volunteer program(s).

III.4 Treatment of Data

The data obtained from online questionnaires were saved in an SPSS 22.0 database. Questionnaires were considered incomplete and removed from database if respondents missed two-thirds of the questions measured in this study. Following the cleaning of these data, both socio-demographic variables and volunteering experience and participation variables were used to determine the profiles of the TPWD volunteers.

A Structural Equation Modeling (SEM) procedure using a two-step approach (Anderson & Gerbing, 1988) in Linear Structural Relations (8.8 version) was used to test the research hypotheses associated with Research Question 1. First, a confirmatory factor analysis with maximum likelihood (ML) estimation was performed on each factor structure (motivation, satisfaction, and commitment). Confirmatory factor analysis is a statistical technique that allows researchers to hypothesize and confirm the connections among observed variables and latent factors suggested by *a priori* theory (Brown, 2006). Next, Cronbach's alphas for each factor were evaluated to test the measurements' reliability.   Additionally, the values of all the factor loadings for each of the individual

items were calculated to ascertain the convergent validity. Second, the hypothetical

relationships among the constructs were tested simultaneously to determine the

predictive utility of the constructs. The fit of the structural model was also assessed.

To address the hypotheses associated with Research Question 2 which focuses on

differences in motivation, satisfaction, commitment, and generativity (based on selected

socio-demographic characteristics). A series of One-way ANOVA and independent t-

test were conducted. Because age, education level, and employment status have more

than two categories, Post-hoc analyses (least significant difference, LSD) were used to

explore differences among groups.

CHAPTER IV

RESULTS

IV.1 Introduction

The research findings testing the hypotheses presented in Chapter 1 are organized and discussed in this chapter. The data analysis involved five steps. First, an examination of the outliers and missing data was conducted. Next, the descriptive statistics (e.g., frequencies, means, percentages, and standard deviations) for the participants' demographic data, as well as their service characteristics, were explored. Third, the descriptive statistics for each variable (e.g., motivation, satisfaction, commitment, and generativity) were examined. Fourth, research question one was addressed using structural equation modeling (SEM) via Linear Structural Relations Version (LISREL) 8.8. This procedure included: (a) a confirmatory factor analysis (CFA), which was utilized to assess the conceptualizations of hypothesized latent variables (e.g., motivation, satisfaction, and commitment); and (b) a hypothesized structural model, which evaluated the direct and indirect relationships among the potential constructs. Finally, Research Question 2 was addressed using a bivariate analysis (e.g., a one-way ANOVA test and independent t-test) to examine whether volunteers' motivation, satisfaction, commitment, and generativity differed based on the following four demographic characteristics: age, gender, education level, and employment status.

IV.2 Response Rates

A total of 6,062 names were obtained from all TPWD divisions. After excluding

any volunteers 17 years old and under, duplicate email addresses, email addresses of

volunteers not participating in volunteer activities between January 2014 and December

2015, and email addresses of volunteers who had previously requested removal from the

mailing list, a sample of 5,936 was produced. An email invitation was then sent to these

5,936 TPWD volunteer members. Of this number, 2,845 individuals logged in to the

Qualtrics website and began the survey, resulting in a raw response rate of 47.9%.

However, not all of the questionnaires were fully completed. Questionnaires were

considered incomplete if respondents missed two-thirds of the questions measured in this

study. In total, there were 135 incomplete forms; all were removed from the final

dataset. Thus, taking into account the 329 names that were returned due to bad email

addresses and the 89 volunteers who had requested deletion from the mailing list, the

effective response rate was 49.1% (2,710/5,518).

IV.3 Data Preparation and Screening

Prior to the data analysis (e.g., the descriptive analysis, model testing, and bivariate

analysis), I examined the outliers and dealt with cases of missing observations. I

identified scores that were out of range by using the descriptive statistics in SPSS. Two

of the intervallic variables in the descriptive analysis (age and hours of participation in

2015) had outliers that, if included, would impact their distribution. The responses to the

age question were determined to be outliers if they were outside the range of 18 to 100.

The responses to hours of participation in 2015 were determined to be outliers if they

were over the maximum number of hours in a year: 8,760. To minimize the impact

outliers might have on the distribution, they were removed from the final dataset.

Moreover, it was evident that the outliers did not create an issue with the model testing or bivariate analyses.

Missing data can cause biased results by reducing the accuracy and validity of the data (Lee, 2009; Sinharay, Stern, & Russell, 2001). Therefore, using an appropriate statistical technique to deal with missing data and draw out the information available from incomplete datasets is very important for an accurate data analysis.

Since many variables were nominally measured in the descriptive analysis (e.g., education level, employment status, and race/ethnicity), missing data found in these sections were completely eliminated from the data analyses. Since the variables involved in the model testing and bivariate analyses were intervallic, the missing data from these sections were replaced by adopting a multiple imputation method (MI) via PRELIS. Compared to other statistical techniques that accommodate missing values, MI has useful advantages. By using this method, the missing values could be imputed by values generated from a multivariate distribution. Moreover, when imputing, MI estimates the uncertainty caused by missing data (Allison, 2002; Sinharay *et al.*, 2001). Additionally, MI does not rely upon the assumptions of normality. Therefore, with MI, the original variability of the missing data could be maintained and reliable results produced (Lee, 2009).

IV.4 Description of the Sample

IV.4.1 Demographic Background

Table 5 summarizes the descriptive statistics for the participants. Respondents were predominantly female (54.4%). Of the total number of participants, 40.9% were

between the ages of 60 and 69, 24.6% were between 70 and 79, 16.6% were between 50

and 59, and less than one percent was under 20 years of age. The average age was 61

years old; ages ranged from18 to 89. An analysis of the respondents indicated that they

were well- educated with 70.7% completing a university or post-graduate degree. Of the

total respondents, 61.5% had annual incomes higher than $60,000. In terms of

employment status, 58.5% were retired and 25.1% were employed full time. Of the 123

respondents (4.7%) who selected "Other" to describe their employment status, the top

three descriptions were self-employed (1.7%; n = 44), student (0.6%; n = 16), and

disabled (0.5%; n = 14). Racially/ethnically, a majority were white (88.1%); the second

largest group, Latino/Hispanic made up 5.7% of the total respondents. With regards to

the veteran status of the volunteers, 18.2% were veterans and 4.3% were veterans'

surviving spouses. The remainder, 77.3%, responded to this query with "Not applicable."

Table 5 Volunteer's Demographic Characteristics

Variable	N	Percent or Mean (SD)
Gender		
Male	1,185	45.6
Female	1,415	54.4
Age		
Under 20	10	0.4
20-29	89	3.5
30-39	125	5.0
40-49	179	7.1
50-59	420	16.6
60-69	1,032	40.9
70-79	622	24.6
80 and above	49	1.9
Total	2,525	61.3 years (13.1)

Table 5 Continued

Variable	N	Percent or Mean (SD)
Education		
Some high school or less	14	0.5
High school graduate	133	5.1
Some college/Technical school	615	23.7
University graduate	980	37.8
Post-graduate degree	853	32.9
Employment Status		
Employed full time	653	25.1
Employed part time (less than 32 hours per week)	198	7.6
Unemployed and looking for work	42	1.6
Unemployed but not looking for work	61	2.3
Retired	1,521	58.5
Other	123	4.7
Income		
Under $20,000	110	5.0
$20,000 ~ $39,999	324	14.7
$40,000 ~ $59,999	416	18.8
$60,000 ~ $79,999	381	17.2
$80,000 ~ $99,999	301	13.6
$100,000 ~ $119,999	259	11.7
$120,000 ~ $139,999	140	6.3
$140,000 ~ $159,999	90	4.1
$160,000 and above	190	8.6
Race/Ethnicity		
African-American or Black	36	1.4
Asian	17	0.7
Caucasian or White	2,239	88.1
Latino / Hispanic	145	5.7
Native American / American Indian	15	0.6
Pacific Islander	4	0.2
Multi-racial or Mixed race	30	1.2
Other	55	2.2
Veteran Status		
Veteran	457	18.2
Dependent of a veteran who was killed on active duty	4	0.2
Spouse – a veteran's surviving spouse	108	4.3
Not applicable	1,941	77.3

IV.4.2 Volunteer Service Characteristics

In terms of first being introduced to the idea of volunteering for the TPWD, 17.7% of respondents initially heard of the opportunity through friends or family, 12.5% from the TPWD's website, and 11.2% from a religious organization, youth group, community service association or other non-profit entity. Of the 1,215 respondents (44.9%) who selected "Other" to describe their introduction to the TPWD, the top three descriptions were Master Naturalists (25.8%; n = 697), during visit (6.7%; n = 180), and other volunteer(s) and staff (3.9%; n = 105).

Overall, respondents were dedicated individuals who had volunteered with the TPWD for an average of 45.1 months (SD = 51.5), spending an average of 185.7 hours with TPWD (SD = 315.7) in 2015. A majority of respondents (48.4%, n = 1,307) reported that in 2015 they most frequently volunteered for the Texas Master Naturalist program, while 15.8% (n = 426) usually worked as park hosts, and 10.7% (n = 289) assisted in the outreach and education areas. Of the 111 respondents (4.1%) who selected "Other" to describe their primary volunteer mission, the top three descriptions were wildlife-related projects (1.1%; n = 30), Sea Center Texas (1.1%; n = 29), and customer service (0.7%; n = 18). A summary of the characteristics of the respondents' volunteer services can be found in Table 6.

Table 6 Volunteer Service Characteristics

Variable	N	Percent or Mean (SD)
First heard about volunteering for the TPWD		
Texas Parks and Wildlife Department website	337	12.5
Email	22	0.8
State park friends' group	144	5.3
Religious group, youth group, community service group or other non-profit	304	11.2
College / university	37	1.4
Traditional media (e.g., television, newspaper, and magazine)	148	5.5
Social media (e.g., Instagram, Facebook, and Twitter)	19	0.7
Friends or family	479	17.7
Other	1,215	44.9
Average # of months volunteering for TPWD	2,579	45.1 (51.5)
Average # of hours volunteering for TPWD in 2015	2,076	185.7 (315.7)
TPWD area in which participant most often volunteered		
Park host	426	15.8
State park friends' group or other state park support organization	63	2.3
State park visitor education (e.g., hunter, angler, and archery education)	204	7.6
Special event	84	3.1
Environmental restoration and maintenance (e.g., trail work and clean-up)	183	6.8
Outreach and education (e.g., hunter, angler, and archery education)	289	10.7
Citizen science (e.g., nature trackers and I-naturalists)	34	1.3
Texas Master Naturalist	1,307	48.4
Other	111	4.1

IV.5 Descriptive Statistics

The variables studied to measure volunteers' psychological aspects included: motivation, satisfaction, commitment, and generativity. The following section provides the descriptive statistics for these factors, such as mean scores and standard deviations.

IV.5.1 Motivation

Volunteer motivation measured the reasons behind participants' desire to volunteer. The Volunteer Functions Inventory (VFI) measurement developed by Clary and colleagues (1998) and two functions retrieved from existing environmental volunteer motivation research (e.g., Bruyere & Rappe, 2007; Ryan *et al.*, 2001) were used to measure this concept. A 5-point Likert-type scale was applied to measure these items, ranging from 1 = "Not At All Important" to 5 = "Extremely Important". Table 7 displays the mean and standard deviation for each item.

The results showed that the TPWD volunteers were highly motivated by environment-related reasons, including preserving natural areas for future generations (M = 4.28; SD = 0.90), protecting natural areas from disappearing (M = 4.22; SD = 0.93), concern for the environment (M = 4.12; SD = 0.94), and expectations regarding the environment's improvement (M = 4.07; SD = 1.00). Also, they showed a strong desire to learn about nature, including an eagerness to observe flora and fauna (M = 4.31; SD = 0.85) and a desire for opportunities to learn through direct, hands-on experience (M = 4.10; SD = 0.89). However, they reported low levels of desire to gain career-associated benefits (M = 1.67; SD = 1.147) and build relationships with others (M = 2.20; SD = 1.19) through their volunteer experiences.

Table 7 Descriptive Statistics for Motivation

Items	Mean	SD
1. Volunteering allows me to observe nature	4.31	0.85
2. I volunteer because I can help preserve natural areas for future generations	4.28	0.90
3. Volunteering allows me to protect natural areas from disappearing	4.22	0.93
4. I volunteer because I am concerned about the environment	4.12	0.94
5. Volunteering lets me learn things through direct, hands-on experience	4.10	0.89
6. I volunteer because I want to see improvements to the environment	4.07	1.00
7. Volunteering provides an opportunity for learning about specific plants/animals	3.99	1.03
8. I volunteer because it allows me to learn about the environment	3.98	1.01
9. Volunteering allows me to live in a way that represents my values	3.91	1.02
10. I volunteer because I can express my values through my work	3.75	1.06
11. I enjoy volunteering for TPWD because I can be part of a well-organized project	3.58	1.05
12. By volunteering I feel better about myself	3.57	1.09
13. Volunteering for TPWD provides me with the opportunity to work with good leaders	3.52	1.07
14. Volunteering provides me with the opportunity to meet new people	3.51	1.04
15. Volunteering allows me to be with people like myself	3.50	1.08
16. I volunteer because TPWD volunteer programs are well-organized	3.35	1.09
17. I enjoy volunteering for TPWD because I know what is expected of me	3.33	1.16
18. Volunteering makes me feel needed	3.07	1.22
19. My friends volunteer	2.20	1.19
20. People I'm close to want me to volunteer	1.93	1.18
21. Volunteering may help me to get a foot in the door at a place where I would like to work	1.77	1.22
22. Volunteering allows me to make contacts that might help my career	1.74	1.18
23. Volunteering will help me to succeed in a chosen profession	1.71	1.18
24. Volunteering helps me to explore possible career options	1.67	1.14

IV.5.2 Job Satisfaction

The results for job satisfaction show the experiences volunteers had in working

with TPWD. Volunteer satisfaction was measured by the Volunteer Satisfaction Index

(VSI) (Galindo-Kuhn & Guzley, 2001), using a 5-point Likert-type scale ranging from 1

= "Very Dissatisfied" to 5 = "Very Satisfied". Overall, participants were satisfied with their volunteering experiences; generally, the average mean score was above 3 which represents neutral (see Table 8). Among the eighteen items, the freedom volunteers enjoyed while volunteering (M = 4.28; SD = 0.77) had the highest mean, and the ways in which TPWD offered them performance feedback had the lowest (M = 3.60; SD = 0.86).

Table 8 Descriptive Statistics for Satisfaction

Items	Mean	SD
1. The freedom I have in deciding where and how to volunteer	4.28	0.77
2. The opportunities I have to learn new things	4.27	0.75
3. My relationship with paid staff	4.26	0.84
4. The friendships I have made while volunteering with TPWD	4.25	0.76
5. The fit of the volunteer work to my skills and interests	4.23	0.73
6. The difference my volunteer work makes	4.21	0.71
7. How worthwhile my contribution is	4.20	0.72
8. My relationship with other volunteers	4.20	0.73
9. The chances I have to utilize my knowledge and skills	4.18	0.77
10. The amount of interaction I have with other volunteers	4.13	0.74
11. The amount of time I spend with other volunteers	4.02	0.77
12. The support I receive from TPWD	3.90	0.89
13. The amount of communication provided to me from paid staff	3.89	0.88
14. The access I have to information concerning TPWD	3.85	0.83
15. The amount of information I receive about what TPWD is doing	3.81	0.86
16. How often TPWD acknowledges the work I do	3.77	0.90
17. The amount of permission I need before I can do my job	3.66	0.88
18. The way in which TPWD provides me with performance feedback	3.60	0.86

IV.5.3 Generativity

Generativity describes the participants' "concern in establishing and guiding the next generation" (Erikson, 1963, p. 267). Fifteen items from the Loyola Generativity Scale (McAdams & de St. Aubin, 1992) were used, and measured according to a 5-point

Likert-type scale ranging from 1 = "Strongly Disagree" to 5 = "Strongly Agree". Three items were reverse-coded and used in the analyses: "I do not feel like other people need me;" "In general, my actions do not have a positive effect on other people;" and "I feel as though I have done nothing of worth to contribute to others' lives." Table 9 indicates that the participants reported a high level of generativity; every item had a mean above 3. Among these fifteen items, the desire to pass along knowledge to the next generation had the highest mean (M = 4.40; SD = 0.60), while evaluating the difference they made to others had the lowest (M = 3.18; SD = 1.11).

Table 9 Descriptive Statistics for Generativity

Items	Mean	SD
1. I try to pass along the knowledge I have gained through my experiences	4.40	0.60
2. I feel as though I have done nothing of worth to contribute to others' lives	4.31	0.76
3. I have a responsibility to improve the neighborhood in which I live	4.10	0.69
4. I do not feel that other people need me	4.04	0.69
5. In general, my actions do not have a positive effect on other people	4.03	0.82
6. Volunteering is the morally right thing to do	4.03	0.77
7. Other people say that I am a very productive person	4.01	0.69
8. I have made many commitments to many different kinds of people, groups, and activities in my life	3.98	0.85
9. I have made and created things that have had an impact on other people	3.90	0.73
10. I have important skills that I try to teach others	3.89	0.74
11. I try to be creative in most things that I do	3.86	0.77
12. People come to me for advice	3.85	0.69
13. I think I would like the work of a teacher	3.83	0.79
14. Others would say that I have made unique contributions to society	3.69	0.78
15. I feel as though I have made a difference to many people	3.18	1.11

IV.5.4 Commitment

Volunteer commitment measured the strength of participants' identification with and involvement with TPWD. This was determined by an organizational commitment scale developed by Allen and Meyer (Allen & Meyer, 1990; Meyer & Allen, 1991), which used a 5-point Likert-type scale ranging from 1 = "Strongly Disagree" to 5 = "Strongly Agree". The scores of four items were reversed scored because they were negatively phrased. These items were: "I do not feel 'emotionally attached' to the TPWD volunteer program," "I think that I could easily become as attached to another organization as I am to TPWD," "I do not feel like 'part of the family' at the TPWD volunteer program," and "I do not feel any obligation to remain with the TPWD volunteer program." The reverse-coded responses were used in the data analyses. Table 10 indicates that participants were willing to spend many years with the TPWD volunteer program (M = 4.28; SD = 0.74); however, they were also as likely to form an attachment to another organization as they were to TPWD (M = 2.85; SD = 0.87).

Table 10 Descriptive Statistics for Commitment

Items	Mean	SD
1. I would be very happy to spend many years with TPWD volunteer program	4.28	0.74
2. I enjoy discussing my TPWD volunteer program with people outside the agency	4.20	0.73
3. TPWD volunteer program has a great deal of personal meaning for me	3.89	0.80
4. TPWD volunteer program deserves my loyalty	3.85	0.83
5. I feel a strong sense of belonging to TPWD volunteer program	3.80	0.85
6. I do not feel like "part of the family" at TPWD volunteer program	3.77	0.99
7. I do not feel "emotionally attached" to TPWD volunteer program	3.70	0.98
8. I do not feel any obligation to remain with TPWD volunteer program	3.35	1.01
9. I feel as if TPWD volunteer program's problems are my own	3.30	0.92
10. I owe a great deal to TPWD volunteer program	3.30	0.93
11. I would feel guilty if I left TPWD volunteer program now	3.18	1.04
12. Even if it were to my advantage, I do not feel like it would be right to leave TPWD volunteer program now	3.12	0.93
13. I think that I could easily become as attached to another organization as I am to TPWD	2.85	0.87

IV.6 Confirmatory Factor Analysis

This step in the analysis tested the research hypotheses related to Research

Question 1, using Structural Equation Modeling (SEM) (Anderson & Gerbing, 1988) in

Linear Structural Relations Version 8.8. Research Question 1 considered if motivation,

satisfaction, and generativity contributed to the level of commitment felt by volunteers

for natural resource management agencies. SEM is considered a two-step approach,

including a measurement model and a structural model (Mutawa, 2015). First, responses

were subjected to a confirmatory factor analysis (CFA) with a maximum likelihood

estimation. CFA represents the measurement model for SEM. This procedure was

conducted to ascertain if the relationships among the observed variables and latent

factors (e.g., how the observed variables were loaded onto each factor and the total

number of factors) empirically matched with the researcher's expectations, as suggested by earlier studies conducted on this topic (Cromer, 2009).

The overall model fit was determined by various goodness-of-fit statistics, as well as its Chi-Square value. Some of the more widely used goodness-of-fit statistics were reported, including the comparative fit index (CFI) (Bentler, 1992), root mean square error of approximation (RMSEA) (Steiger & Lind, 1980), non-normed fit index (NNFI) (Bentler & Bonnett, 1980), and standardized root mean square residual (SRMR) (Hu & Bentler, 1998). It was expected that the Chi-Square test would be significant ($p < .001$), as this research had a large sample size (Bachman, 2014). The criteria for each of the goodness-of-fit indices are as follows: (1) CFI values should not be less than 0.95 for an acceptable fit (Hu & Bentler, 1998); (2) RMSEA should be as small as possible, and any value greater than 0.08 should be interpreted as an unreasonable fit (MacCallum *et al.*, 1996); (3) NNFI should exceed 0.95, indicating a good fit (Hu & Bentler, 1998); and (4) SRMR should not be higher than 0.08, suggesting an acceptable fit (Bentler & Bonnett, 1980). Additionally, the Cronbach's alpha coefficient for each factor was evaluated to determine the internal consistency of the measurements. The CFA results of each latent factor are displayed in Tables 11 through 13.

IV.6.1 Motivation

A CFA procedure was conducted to assess the construct validity of volunteer motivation. There were 24 items in the instrument, rated on a five-point Likert scale with 1 = "Not At All Important" and 5 = "Extremely Important". Table 11 presents the results of the factorial validity test of the volunteer motivation construct. Volunteer

motivation initially consisted of six factors: *Helping the environment*, *Project organization*, *Values*, *Learning*, *Career*, and *Social*. Each factor was comprised of four items. As exhibited in Table 11, the hypothesized model adequately fit the sample data with $\chi^2_{(237)} = 3{,}984.51$, CFI = 0.96, RMSEA = 0.07, NNFI = 0.96, and SRMR = 0.06. Therefore, it was determined that the motivational construct consisted of six factors (e.g., *Helping the environment, Project organization, Values, Learning, Career, and Social*); all six factors were inter-correlated. It was not necessary to modify this model. Moreover, the Cronbach's alpha value for each of these factors was equal to or greater than 0.70, indicating sufficient internal consistency across all items in each construct (Litwin, 1995). This six-factor motivation model, originally adapted from Clary and colleagues' (1998) Volunteer Functions Inventory and existing research on environmental volunteer motivations (e.g., Bruyere & Rappe, 2007; Ryan *et al.*, 2001; Weston *et al.*, 2003), was found to be applicable to the environmental volunteer context.

Moreover, based on the factors' mean scores, the TPWD volunteers reported high levels of desire to help the environment (M = 4.17, SD = 0.84) and learn new knowledge about nature (M = 4.09, SD = 0.79); they reported low levels of desire to gain career-associated benefits (M = 1.72, SD = 1.1) and build relationships with others (M = 2.78, SD = 0.81) through their volunteer experiences.

Table 11 Confirmatory Factor Analysis of the Motivation Construct [a, b]

Items	Mean (SD) [a, b]	α	λ	t-value
Helping the environment	4.17 (0.84)	0.91		
I volunteer because I am concerned about the environment			0.78	47.52
Volunteering allows me to protect natural areas from disappearing			0.86	55.20
I volunteer because I can help preserve natural areas for future generations			0.86	54.91
I volunteer because I want to see improvements to the environment			0.87	56.27
Learning	4.09 (0.79)	0.86		
Volunteering lets me learn things through direct, hands-on experience			0.70	39.90
Volunteering provides an opportunity for learning about specific plants/animals			0.81	48.94
I volunteer because it allows me to learn about the environment			0.88	55.81
Volunteering allows me to observe nature			0.74	43.08
Values	3.58 (0.85)	0.77		
By volunteering I feel better about myself			0.64	34.51
I volunteer because I can express my values through my work			0.72	40.08
Volunteering makes me feel needed			0.61	32.68
Volunteering allows me to live in a way that represents my values			0.75	42.62
Project organization	3.44 (0.90)	0.84		
Volunteering for TPWD provides me with the opportunity to work with good leaders			0.70	39.97
I enjoy volunteering for TPWD because I know what is expected of me			0.66	37.28
I enjoy volunteering for TPWD because I can be part of a well-organized project			0.86	53.67
I volunteer because TPWD volunteer programs are well-organized			0.84	51.42
Social	2.78 (0.81)	0.70		
My friends volunteer			0.45	22.30
Volunteering provides me with the opportunity to meet new people			0.70	37.13
Volunteering allows me to be with people like myself			0.73	39.18
People I'm close to want me to volunteer			0.45	22.24

Table 11 Continued

Items	Mean (SD) [a, b]	α	λ	t-value
Career	1.72 (1.1)	0.94		
Volunteering may help me to get a foot in the door at a place where I would like to work			0.87	56.20
Volunteering allows me to make contacts that might help my career			0.92	62.47
Volunteering helps me to explore possible career options			0.94	64.55
Volunteering will help me to succeed in a chosen profession			0.88	57.58

a. Items were measured on a five-point scale where 1 = "Not At All Important" and 5 = "Extremely Important"
b. Fit indices: $\chi^2_{(237)}$ = 3,984.51, CFI = 0.96, RMSEA = 0.07, NNFI = 0.96, SRMR = 0.06

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IV.6.2 Satisfaction

Theoretically, the satisfaction construct was composed of four dimensions, each measuring one facet of satisfaction; *Organizational support* included seven items, while the *Project organization, Sense of empowerment, and Group integration* subscales were comprised of four, three, and four items, respectively. A CFA procedure was employed to test the multidimensionality of the satisfaction construct for environmental volunteers that was derived from the Volunteer Satisfaction Index (Galindo-Kuhn & Guzley, 2001). All the original fit indices met the criteria, with $\chi^2_{(129)} = 2{,}394.85$, CFI = 0.97, RMSEA = 0.08, NNFI = 0.97, and SRMR = 0.04, representing a reasonable fit to the sample data. Also, as shown in Table 11, all four factors had adequate internal consistency, with the Cronbach's alpha values ranging from 0.78 to 0.93. Therefore, with the four factors inter-correlated, the hypothesized model was empirically proven to be consistent with the theoretical expectations.

Among the four subscales, *Participation efficacy* had the largest mean (M = 4.23, SD = 0.61) and *Organizational support* had the least (M = 3.84, SD = 0.70). Overall, participants were satisfied with their volunteering experiences; generally, the average mean score was above 3 which represents neutral (see Table 12).

Table 12 Confirmatory Factor Analysis of the Satisfaction Construct [a, b]

Items	Mean (SD) [a, b]	α	λ	t-value
Participation efficacy	4.23 (0.61)	0.86		
The difference my volunteer work makes			0.78	46.60
The opportunities I have to learn new things			0.70	40.01
The fit of the volunteer work to my skills and interests			0.81	49.85
How worthwhile my contribution is			0.83	51.72
Group integration	4.15 (0.68)	0.93		
My relationship with other volunteers			0.83	52.23
The friendships I have made while volunteering for TPWD			0.82	51.04
The amount of interaction I have with other volunteers			0.94	64.59
The amount of time I spend with other volunteers			0.89	58.92
Sense of empowerment	4.10 (0.65)	0.78		
The access I have to information concerning TPWD			0.70	39.93
The freedom I have in deciding where and how to volunteer			0.72	41.54
The chances I have to utilize my knowledge and skills			0.79	46.91
Organizational support	3.84 (0.70)	0.91		
My relationship with paid staff			0.69	39.64
The way in which TPWD provides me with performance feedback			0.78	46.93
The support I receive from TPWD			0.84	53.18
The amount of information I receive about what TPWD is doing			0.74	44.10
The amount of communication provided to me from paid staff			0.83	52.07
How often TPWD acknowledges the work I do			0.80	48.86
The amount of permission I need before I can do my job			0.67	38.62

a. Items were measured on a five-point scale where 1 = "Very Dissatisfied" and 5 = "Very Satisfied"
b. Fit indices: $\chi^2_{(129)} = 2,394.85$, CFI = 0.97, RMSEA = 0.08, NNFI = 0.97, SRMR = 0.04

IV.6.3 Commitment

In line with the empirical research findings of previous research, volunteer

commitment was composed of two factors: *Affective* and *Normative commitment*. A

CFA procedure was also conducted to test the validity of the two-factor structure of

commitment to TPWD. The goodness-of-fit indices suggested that the hypothesized

model was a poor fit to the sample data, with $\chi^2_{(64)} = 2{,}892.64$, CFI = 0.92, RMSEA =

0.13, NNFI = 0.90, and SRMR = 0.07. Therefore, there was a need to re-specify the

model. When reviewing the modification indices, the measurement error terms were

found to be the source of the trouble. The measurement errors of the indicators that were

highly correlated were then identified and allowed. Correlated errors were specified

between the following: "I would be very happy to spend many years with TPWD

volunteer program" and "I enjoy discussing my TPWD volunteer program with people

outside the agency" from the *Affective commitment* subscale; "I do not feel emotionally

attached to TPWD volunteer program" and "I do not feel like 'part of the family' at

TPWD volunteer program" from the *Affective commitment* subscale; and "I would feel

guilty if I left TPWD volunteer program right now" and "Even if it were to my

advantage, I do not feel like it would be right to leave the TPWD volunteer program

right now" from the *Normative commitment* subscale.

The specification of correlated errors was justified, based on source or method

effects that indicated a covariation other than the common factor (e.g., *Affective*

commitment or *Normative commitment*); this was caused by reversed or similarly worded

test items (Brown, 2003; Marsh, 1996). The fit of the error terms' correlated model of

commitment was statistically better than that of the error terms uncorrelated model ($\chi^2_{(61)}$ = 896.92, CFI = 0.98, RMSEA = 0.07, NNFI = 0.97, SRMR = 0.04).

The goodness-fit-indices of the modified model structure showed a satisfactory fit to the sample data. However, the magnitude of the factor loadings indicated another issue: one indicator of the *Affective commitment* dimension, "I think that I could easily become as attached to another organization as I am to TPWD", had a low factor loading (λ = 0.15). This item was deleted to re-specify the model and re-approximate the parameter estimates. The goodness-of-fit statistics of the two-dimension structure of the commitment construct with six errors correlated and one item removed are shown in Table 13. The results for the model with all items compared with the model with one item deleted ($\Delta\chi^2_{(11)}$ = 131) showed substantial model improvement and was statistically significant ($p < 0.000$). Assessments of the internal validity of *Affective* and *Normative commitment* were then conducted using Cronbach's alphas. As displayed in Table 13, the Cronbach's alphas of these two factors (0.85 and 0.80) indicated excellent internal consistency. Between the two sub-dimensions, the findings indicated that the participants perceived their commitment to TPWD as being more affective (M = 3.72, SD = 0.58) than normative (M = 3.35, SD = 0.71).

Table 13 Confirmatory Factor Analysis of the Commitment Construct [a, b]

Items	Mean (SD)	α	λ	t-value
Affective commitment	3.72 (0.58)	0.85		
I would be very happy to spend many years with the TPWD volunteer program			0.63	35.09
I do not feel "emotionally attached" to TPWD volunteer program			0.61	33.75
I enjoy discussing my TPWD volunteer program with people outside the agency			0.59	32.60
I feel as if TPWD volunteer program's problems are my own			0.48	25.25
I do not feel like "part of the family" at TPWD volunteer program			0.56	30.53
TPWD volunteer program has a great deal of personal meaning for me			0.84	51.90
I feel a strong sense of belonging to TPWD volunteer program			0.90	58.35
Normative commitment	3.35 (0.71)	0.80		
TPWD volunteer program deserves my loyalty			0.79	45.81
I would feel guilty if I left TPWD volunteer program right now			0.67	36.80
I owe a great deal to TPWD volunteer program			0.73	41.52
I do not feel any obligation to remain with TPWD volunteer program			0.53	27.69
Even if it were to my advantage, I do not feel like it would be right to leave TPWD volunteer program right now			0.49	25.16

a.   Items were measured on a five-point scale where 1 = "Strongly Disagree" and 5 = "Strongly Agree"
b.   Fit indices: $\chi^2_{(50)} = 765.92$, CFI = 0.97, RMSEA = 0.07, NNFI = 0.97, SRMR = 0.04

IV.7 Item Parceling

In the model for this study, *Motivation*, *Satisfaction*, and *Commitment* were considered second-order factors because the items in the questionnaire scaled to one dimension of each of these variables. Through the use of item parceling investigators often seek to transform second-order factor models into primary factor constructs in first-order factor analyses (Kishton & Widaman, 1994).

Item parceling refers to a measurement practice that combines individual items "assumed to be conceptually similar and psychometrically unidimensional" (Lee, 2009, p. 120), and uses these combined items (their sums or means) as indicators in SEM (Chien, 2015; Kishton & Widaman, 1994). Item parceling is commonly used in applied structural equation model studies (Bandalos & Finney, 2001).

In previous studies, researchers adopted various methods of applying item parceling in SEM. Lee (2009) used item parceling to examine the factor structure of festival visitors' loyalty. She categorized items designed to measure conceptually similar subscales into parcels; then, she used the sums of these theoretically congeneric parcels to convert the first-order latent variables into observed variables, so that they might be treated as indicators of second-order latent variables. This allowed her to conduct further data analyses.

This study followed Lee's (2009) item parceling method. The subscale scores resulted from the sums of the items designed to measure particular facets of constructs that then served as indicators for the general construct. The initial model had six subscales for motivation (*Helping the environment, Project organization, Values,*

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Learning, Career, and *Social*), four for satisfaction (*Organizational support,*

Participation efficacy, Sense of empowerment, and *Group integration*), and two for

commitment (*Affective commitment* and *Normative commitment*). Unlike the three latent

variables, all 15 of the items for the generativity scale assessed a homogeneous construct

(see de Espanés *et al.*, 2015; Scott *et al.*, 2003; Vuksanovic, Dyck, & Green, 2014). I

randomly assigned each of the items to one of three parcels. Each parcel was composed

of five items. The Cronbach's alpha of each of the parcels was then determined to

estimate the parcel's internal consistency. The results met the minimum standard for

reliability (> 0.60) (Kishton & Widaman, 1994), given a range between 0.64 and 0.73.

In the next step of the data analysis, these subscale scores were used as the indicator

variables for the underlying latent factors.

IV.8 Testing the Measurement Model

Testing the validity and reliability of the measurement model is an integral step in a

SEM analysis (Byrne, 1998). This assessment allows the researcher to decide which

indicators are psychometrically sound and how many is the appropriate number to use

when measuring a construct (Lee, 2009). Thus, to develop a measurement model for the

full structural equation model, psychometrically sound latent variables were carefully

selected based on their validity and reliability (Lee, 2009).

Similarly, the validity of the measurement model was examined by using a CFA

procedure.   A Chi-Square test and various goodness-of-fit indices were applied to

evaluate the overall model fit of the CFA. The results of the Chi-Square test and

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selected goodness-of-fit statistics were: $\chi^2_{(84)} = 2,585.75$, CFI = 0.94, RMSEA = 0.10, NNFI = 0.93, and SRMR = 0.05, indicating a poor fit to the sample data.

A review of the modification indices of the error covariances indicated that two pairings (*Helping the environment* and *Learning,* and *Career* and *Social*) from the motivation construct substantially contributed to the model's misspecification. These parings were defined as free parameters in the model because they were intuitively correlated to one another. The re-specified model showed substantial improvement over the initial model, as reflected in the statistically significant difference in: χ^2 ($\Delta\chi^2_{(2)} = 1,070.44, p < 0.000$). The re-specified model with the measurement errors specified as free parameters fit these data well: $\chi^2_{(82)} = 1,515.31$, CFI = 0.97, RMSEA = 0.08, NNFI = 0.96, SRMR = 0.04 (see Table 14). Therefore, the four-dimension measurement model for TPWD volunteers was used in the subsequent data analysis, as its goodness-of-fit indices and the internal consistency of the latent variables were acceptable, and the size of the factor loading was adequate.

Table 14 Confirmatory Factor Analysis and Item Descriptions of Subscale Scores for Latent Constructs [a]

Items	α	λ	*t*-value	R^2
Motivation	0.91			
Helping the environment		0.52	27.07	0.28
Project organization		0.79	45.59	0.63
Values		0.81	46.79	0.65
Learning		0.61	32.52	0.37
Career		0.31	15.27	0.10
Social		0.64	34.68	0.41
Satisfaction	0.94			
Organizational support		0.78	46.73	0.61
Participation efficacy		0.85	53.62	0.73
Sense of empowerment		0.86	54.18	0.74
Group integration		0.68	38.97	0.47
Commitment	0.89			
Affective commitment		0.94	56.82	0.88
Normative commitment		0.71	40.14	0.51
Generativity	0.86			
Generativity item parcel 1		0.80	47.33	0.64
Generativity item parcel 2		0.90	55.88	0.81
Generativity item parcel 3		0.73	41.84	0.53

a.   Fit indices: $\chi^2_{(82)}$ = 1,515.31, CFI = 0.97, RMSEA = 0.08, NNFI = 0.96, SRMR = 0.04.

IV.9 Testing the Structural Model

Since the four-dimension measurement model was determined to be psychometrically valid, tests were conducted to determine the relationships among the latent variables in the hypothesized model (see Figure 2). The results of Chi-Square test and selected goodness-of-fit indices for the structural model were $\chi^2_{(82)}$ = 1,515.37, CFI = 0.97, RMSEA = 0.08, NNFI = 0.96, SRMR = 0.04. Moreover, the model statistics fell within acceptable ranges.
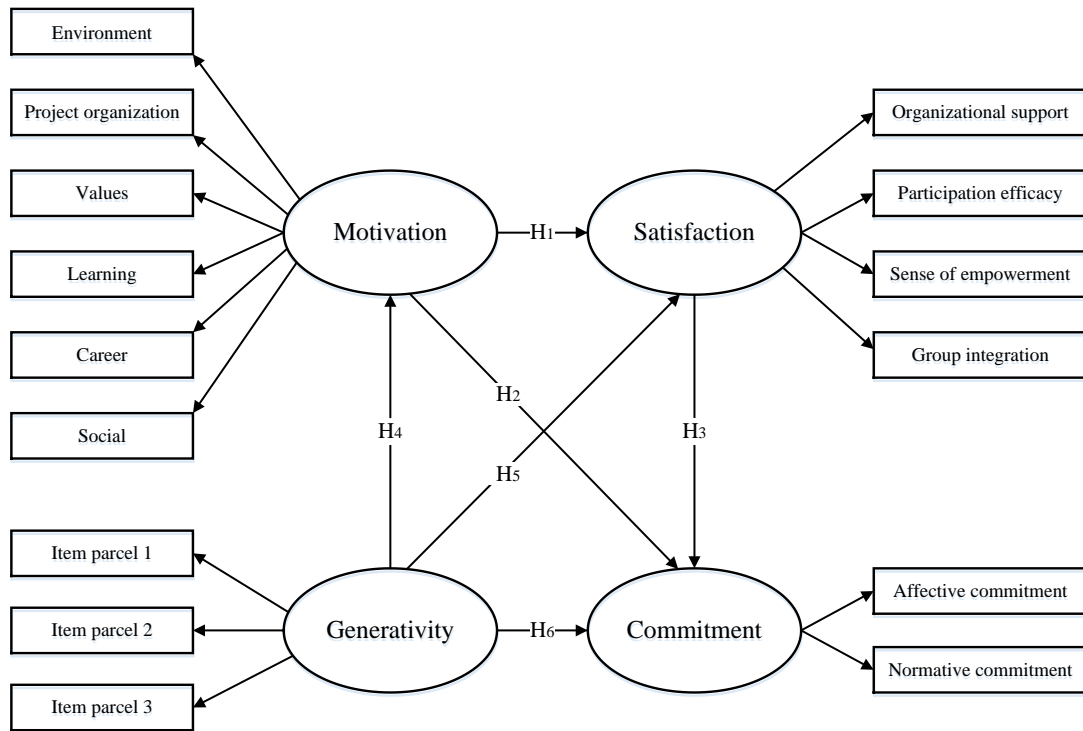
Figure 2 Hypothesized Structural Equation Model

Figure 3 illustrates the paths and resulting standardized regression weights of the hypothesized structural equation model. All six hypotheses related to Research Question 1 were statistically significant, meaning that there were positive path relationships among all latent variables.
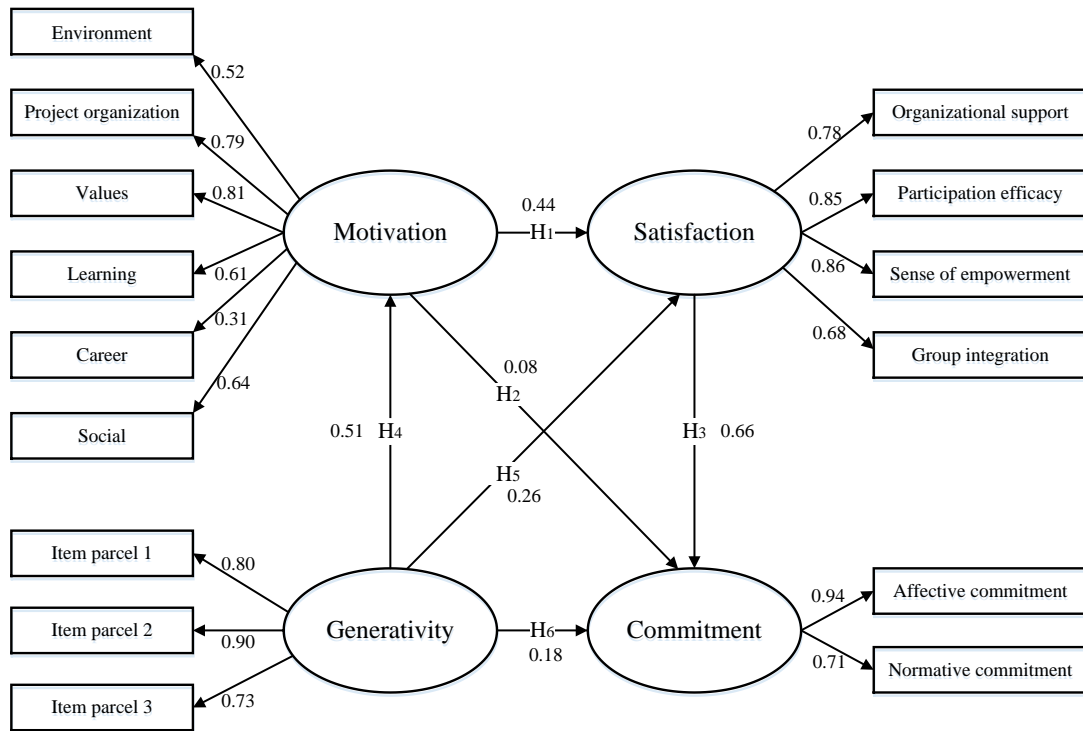
Figure 3 Structural Model with Standardized Estimates of Regression Coefficients

Table 15 displays a summary of the standardized estimates of the path coefficients. *Motivation*, represented by *Helping the environment*, *Project organization*, *Values*, *Learning*, *Career*, and *Social* had significant and positive influence on *Satisfaction* (β = 0.44, t = 15.58, $p < 0.001$) and *Commitment* (β = 0.08, t = 3.99, $p < 0.001$). These findings empirically supported two hypotheses: H_1: Volunteer motivations positively influence volunteer satisfaction, and H_2: Volunteer motivations positively influence volunteer commitment.

Along with *Motivation*, *Commitment* was found to be significantly and positively driven by *Satisfaction* (β = 0.66, t = 29.62, $p < 0.001$). The path from the antecedent process explained 67% of the variance in *Commitment*. Thus, the sample data from the

TPWD volunteers supported the hypothesis that *Satisfaction* would significantly and

positively influence *Commitment.*

Finally, *Generativity* significantly and positively impacted *Motivation* ($\beta = 0.51$, $t =$

18.69, $p < 0.001$), *Satisfaction* ($\beta = 0.26$, $t = 11.27$, $p < 0.001$), *and Commitment* ($\beta =$

0.18, $t = 9.57$, $p < 0.001$). Based on these findings, it was determined that the empirical

evidence supported hypotheses 4, 5, and 6, which posited that *Generativity* would

significantly influence *Motivation*, *Satisfaction*, and *Commitment*, respectively. In terms

of the magnitude of the relationships among these hypotheses, the largest positive

coefficient existed for the relationship between *Generativity* and *Motivation* (H_4). This

was followed by the relationship between *Generativity* and *Satisfaction* (H_5). Although

it had statistical meaning, the size of the path coefficient between *Generativity* and

Commitment was very small ($\beta = 0.18$).

Table 15 Regression Coefficients

Path (Hypotheses)		B	SE	β	t	R^2
Motivation	→Satisfaction (H_1)	0.95	0.06	0.44	15.58***	0.37
Motivation	→Commitment (H_2)	0.20	0.05	0.08	3.99***	
Satisfaction	→Commitment (H_3)	0.72	0.02	0.66	29.62***	0.67
Generativity	→Motivation (H_4)	0.44	0.02	0.51	18.69***	0.26
Generativity	→Satisfaction (H_5)	0.48	0.04	0.26	11.27***	
Generativity	→Commitment (H_6)	0.36	0.04	0.18	9.57***	

*** $p < 0.001$

The hypothesized model also predicted the indirect effects of *Motivation* on

Commitment via *Satisfaction, Generativity* on *Satisfaction* via *Motivation,* and

Generativity on *Commitment* via *Motivation and Satisfaction.* The indirect and total

effects of the exogenous (e.g., *Motivation* and *Generativity*) and mediating (e.g.,

Satisfaction) variables on the endogenous (e.g., *Commitment*) variables of interest are

provided in Table 16. In this empirical practice, all indirect effects were statistically

significant. Specifically, *Satisfaction* significantly mediated the relationship between

Motivation and *Commitment* (indirect effect = 0.29, t = 14.40, p < 0.001), *Motivation*

and *Satisfaction* significantly mediated the relationship between *Generativity* and

Commitment (indirect effect = 0.36, t = 20.32, p < 0.001), and *Motivation* significantly

mediated the relationship between *Generativity* and *Satisfaction* (indirect effect = 0.22, t

= 14.64, p < 0.001).

Table 16 Summary of Effects

Path				Indirect	Total	SE	t
Motivation	→Satisfaction	→Commitment		0.29		0.05	14.40***
Generativity	→Motivation	→Satisfaction	→Commitment	0.36		0.04	20.32***
Generativity	→Motivation	→Satisfaction		0.22		0.03	14.64***
Motivation	→Commitment				0.37	0.06	14.45***
Motivation	→Satisfaction				0.44	0.06	15.58***
Satisfaction	→Commitment				0.66	0.02	26.62***
Generativity	→Motivation				0.51	0.02	18.69***
Generativity	→Satisfaction				0.49	0.04	21.95***
Generativity	→Commitment				0.54	0.04	26.32***

***$p < 0.001$

The total effect was provided to demonstrate the sum of all of the effects (including

direct and indirect) of the variables on one another (see Table 16). The results showed

that both *Motivation* (total effect = 0.37, $t = 14.45$, $p < 0.001$) and *Generativity* (total

effect = 0.54, $t = 26.32$, $p < 0.001$) had notable effects on *Commitment.*

IV.10 Bivariate Comparisons of Socio-Demographic Characteristics

Research Question 2 focused on how people with various socio-demographic

characteristics (age, gender, education level, and employment status) experience

volunteering for natural resource management agencies. Data regarding Research

Question 2 were analyzed using the statistical software package SPSS version 22.0. A

series of one-way ANOVA and independent *t*-tests were conducted to evaluate the

relationships among the selected demographic variables (age, gender, education level,

and employment status) and volunteers' motivation, satisfaction, commitment, and

generativity.

IV.10.1 Age

Hypothesis 7: Volunteers' motivation, satisfaction, commitment, and generativity differ

based on age.

The sample consisted of participants aged 18 to 89 (M = 61.3; SD = 13.1) (see

Table 5). Based on Erikson's theory of psychosocial development (1963; 1982), middle

adulthood (ages 40 to 65) is the period during which the crisis of generativity most often

occurs. In this context, it is appropriate and reasonable to categorize participants into

three age groups: young volunteers (18 to 39 years old; n = 224), middle-aged volunteers

(40 to 65 years old; n = 1,137), and older volunteers (66 and above; n = 1,164). A series

of one-way ANOVA tests were conducted to determine whether a volunteer's age affected their motivation, satisfaction, commitment, and generativity. Post-hoc analyses (least significant difference, LSD) were then conducted to explore differences among the age groups.

IV.10.1.1 Motivation

Six ANOVA tests were conducted using the mean scores for *Helping the environment*, *Project organization*, *Values*, *Learning*, *Career*, and *Social*, according to each age group. This was followed by an LSD test (initially developed by Fisher) that determined the differences in means by age group. The results of the ANOVA tests showed that four of the six motivational factors measured in this study statistically differed by age (see Table 17). Particularly, for *Helping the environment* the test revealed $F (2, 2522) = 7.71$, $p < 0.001$; for *Learning* the test indicated $F (2, 2522) = 4.86$, $p < 0.05$; for *Career* the test disclosed $F (2, 2522) = 498.68$, $p < 0.001$; and for *Social* the test showed $F (2, 2522) = 3.79$, $p < 0.01$. Then, the LSD test was used to identify variances among the age groups for these four motivational factors, as their overall ANOVA tests were statistically significant. The LSD test revealed that *Helping the environment* scores for young volunteers (M = 4.27; SD = 0.76) were significantly higher than for older volunteers (M = 4.10; SD = 0.84), but not significantly higher than for middle-aged volunteers (M = 4.22; SD = 0.84). Likewise, results of the LSD test showed that *Learning* motivation had a significantly higher mean for young volunteers (M = 4.19; SD = 0.77) than older volunteers (M = 4.05; SD = 0.78), but not significantly higher than for middle-aged volunteers (M = 4.13; SD = 0.81). Moreover, young

volunteers (M = 3.34; SD = 1.29) had significantly distinct *Career* means that were higher than those of middle-aged (M = 1.86; SD = 1.12) and older volunteers (M = 1.26; SD = 0.57). Finally, young volunteers (M = 2.92; SD = 0.92) had a significantly higher *Social* mean than the other age groups; the other groups did not significantly differ from one anther (middle-aged volunteers: M = 2.79; SD = 0.81; older volunteer: M = 2.76; SD = 0.77).

IV.10.1.2 Satisfaction

Four separate ANOVA tests were used to evaluate the mean scores of satisfaction factors (e.g., *Organizational support*, *Participation efficacy*, *Sense of empowerment*, and *Group integration*) for differences based on age. Satisfaction ratings were significantly different for all four tests. Specifically, for *Organizational support* the tests revealed F (2, 2522) = 4.98, $p < 0.001$; for *Participation efficacy* F (2, 2522) = 3.71, $p < 0.05$; for *Sense of empowerment* F (2, 2522) = 4.90, $p < 0.001$; and for *Group integration* F (2, 2522) = 10.87, $p < 0.001$. The LSD tests showed that the mean score for young volunteers (M = 3.94; SD = 0.68) regarding *Organizational support*, although not statistically different from that of middle-aged volunteers (M = 3.87; SD = 0.70), was significantly higher for older volunteers (M = 3.81; SD = 0.71). Similarly, *Participation efficacy* and *Sense of empowerment* were rated higher by young and middle-aged volunteers than older volunteers. However, the LSD test for *Group integration* revealed that middle-aged volunteers were more likely to report satisfaction regarding group integration than were the other two groups.

IV.10.1.3 Commitment

Two ANOVA tests evaluated the mean scores of the commitment factors (e.g., *Affective commitment* and *Normative commitment*) for differences based on age. Volunteers only differed significantly on *Affective commitment.* The results indicated that middle-aged volunteers (M = 3.90; SD = 0.62) had statistically higher scores than young (M =3.81; SD = 0.68) and older volunteers (M = 3.84; SD = 0.63).

IV.10.1.4 Generativity

A one-way ANOVA test was conducted to assess differences in generativity based on age. The results showed that significant differences in generativity existed between the age groups. The LSD test revealed that the generativity score for middle-aged volunteers (M = 3.72; SD = 0.36) was significantly higher than that of older volunteers (M = 3.66; SD = 0.37), but not significantly higher than the score for young volunteers (M = 3.71; SD = 0.39).

Table 17 Results of One-Way ANOVA and LSD Tests by Age Group

Variable	Young M (*SD*)	Middle-aged M (*SD*)	Older M (*SD*)	F scores and Sig.
Motivation				
Helping the environment	4.27[a] (0.76)	4.22 [a] (0.84)	4.10[b] (0.84)	F (2, 2522) = 7.71***
Project organization	3.48 (0.94)	3.45 (0.91)	3.45 (0.88)	F (2, 2522) = 0.14
Values	3.66 (0.85)	3.58 (0.84)	3.59 (0.83)	F (2, 2522) = 0.96
Learning	4.19[a] (0.77)	4.13[a] (0.81)	4.05[b] (0.78)	F (2, 2522) = 4.86**
Career	3.34[a] (1.29)	1.86[b] (1.12)	1.26[c] (0.57)	F (2, 2522) = 498.68***
Social	2.92[a] (0.92)	2.79[b] (0.81)	2.76[b] (0.77)	F (2, 2522) = 3.79*
Satisfaction				
Organizational support	3.94 (0.68)[a]	3.87 (0.70)[a]	3.81 (0.71)[b]	F (2, 2522) = 4.98***
Participation efficacy	4.25 (0.63)	4.27 (0.61)[a]	4.20 (0.60)[b]	F (2, 2522) = 3.71*
Sense of empowerment	4.18 (0.63)[a]	4.14 (0.66)[a]	4.07 (0.66)[b]	F (2, 2522) = 4.90***
Group integration	3.98 (0.81)[c]	4.15 (0.68)[b]	4.21 (0.65)[a]	F (2, 2522) = 10.87***
Commitment				
Affective commitment	3.81 (0.68)[b]	3.90 (0.62)[a]	3.84 (0.63)[b]	F (2, 2522) = 3.23*
Normative commitment	3.27 (0.71)	3.36 (0.72)	3.39 (0.71)	F (2, 2522) = 2.93
Generativity	3.71 (0.39)[a]	3.72 (0.36)[a]	3.66 (0.37)[b]	F (2, 2522) = 19.29***

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

IV.10.2 Gender

Hypothesis 8: Volunteers' motivation, satisfaction, commitment, and generativity differ based on gender.

Participants in this study were categorized into one of two gender groups: male (n = 1,185) and female (n = 1,415). A number of independent *t*-tests were utilized to determine whether male and female volunteers differ in terms of motivation, satisfaction, commitment, and generativity. The results of this analysis are discussed in the following sections.

IV.10.2.1 Motivation

The results of the independent *t*-tests revealed that gender differences with the four motivational factors (see Table 18). Specifically, women scored higher in the motivation-based categories of *Helping the environment* ($t = -11.11$, $p < 0.001$), *Project organization* ($t = -6.70$, $p < 0.001$), *Values* ($t = -6.35$, $p < 0.001$), and *Learning* ($t = -13.96$, $p < 0.001$).

IV.10.2.2 Satisfaction

All of the volunteer satisfaction categories showed significant differences based on gender: *Organizational support,* $t = -1.97$, $p < 0.05$; *Participation efficacy,* $t = -4.43$, $p < 0.001$; *Sense of empowerment,* $t = -4.23$, $p < 0.001$, and for *Group integration,* $t = -2.49$, $p < 0.05$. All of these scores were based on a five-point scale, where 1 = "Very Dissatisfied" to 5 = "Very Satisfied". Males and females were generally content with their volunteer experiences. For the satisfaction subscales, mean scores ranged between 3.82 and 4.18 for male respondents, and between 3.87 and 4.28 for female respondents.

Moreover, female volunteers were more satisfied with their volunteering than were male counterparts.

IV.10.2.3 Commitment and Generativity

The results of the independent *t*-tests showed that female and male volunteers did not experience *Affective commitment* ($t = -1.78$, $p > 0.05$), *Normative commitment* ($t = -0.47$, $p > 0.05$), or *Generativity* ($t = 0.15$, $p > 0.05$) differently.

Table 18 Results of Independent *t*-tests by Gender

Variable	Male	Female	*t*-values and Sig.
	M (*SD*)	M (*SD*)	
Motivation			
Helping the environment	4.00 (0.90)	4.33 (0.73)	-11.11***
Project organization	3.32 (0.91)	3.55 (0.88)	-6.70***
Values	3.47 (0.86)	3.68 (0.81)	-6.35***
Learning	3.86 (0.85)	4.29 (0.68)	-13.96***
Career	1.69 (1.07)	1.75 (1.11)	-1.56
Social	2.78 (0.83)	2.79 (0.78)	-0.43
Satisfaction			
Organizational support	3.82 (0.71)	3.87 (0.70)	-1.97*
Participation efficacy	4.18 (0.61)	4.28 (0.60)	-4.43***
Sense of empowerment	4.05 (0.68)	4.16 (0.63)	-4.23***
Group integration	4.12 (0.70)	4.19 (0.69)	-2.49*
Commitment			
Affective commitment	3.83 (0.64)	3.88 (0.62)	-1.78
Normative commitment	3.36 (0.73)	3.37 (0.70)	-0.47
Generativity	3.68 (0.37)	3.67 (0.36)	0.15

*$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

IV.10.3 Education Level

Hypothesis 9: Volunteers' motivation, satisfaction, commitment, and generativity differ based on education level.

In order to determine if there were differences among the volunteers based on their education level, respondents were categorized into three groups: less than university (combined some high school or less, high school graduate, and some college/technical school; n = 762); university graduate (n = 980); and post-graduate degree (n = 853). A series of ANOVA tests were applied to assess whether there were any differences in terms of motivation, satisfaction, generativity, or commitment. When the overall ANOVA test was statistically significant, an LSD post hoc was used to establish differences among the education levels.

IV.10.3.1 Motivation

The results of the one-way ANOVA tests showed that there were distinguished differences among the education levels for each of the following motivation factors: *Helping the environment, F* $(2, 2592) = 3.10$, $p < 0.05$; *Project organization, F* $(2, 2592) = 27.58$, $p < 0.001$; *Values*, F $(2, 2592) = 7.42$, $p < 0.001$; *Learning, F* $(2, 2592) = 3.87$, $p < 0.05$; *Career, F* $(2, 2592) = 21.90$, $p < 0.001$, and *Social*, F $(2, 2592) = 10.09$, $p < 0.001$ (see Table 19).

LSD post hoc tests were then required for all motivational factors with significant ANOVA test results. Volunteers with post-graduate degrees were more likely than volunteers with less than four-year university degrees to report being motivated by *Helping the environment* and *Learning.* Volunteers with less than four-year university

degrees were more likely to be involved with volunteer organizations for reasons related

to *Project organization, Values, and Social* aspects than were volunteers with university

degrees or more. Although *Career* motivation was significantly more important for

volunteers with less than four-year university degrees than volunteers with post-graduate

degrees, it was a relatively unimportant reason for volunteering in general; all three

groups rated it below 3 (3 = Neutral).

IV.10.3.2 Satisfaction

Volunteers differed significantly with regards to all four satisfaction factors:

Organizational support, F (2, 2592) = 35.94, $p < 0.001$; Participation efficacy, F (2,

2592) = 4.74, $p < 0.01$; Sense of empowerment, F (2, 2592) = 5.59, $p < 0.01$, and Group

integration, F (2, 2592) = 16.44, $p < 0.001$.

The means for all four satisfaction factors for volunteers with less than four-year

university degrees were significantly higher than for the other two groups; also, the other

groups did not differ significantly from one another. This result indicated that

volunteers with less than four-year university degrees were more satisfied with their

volunteer experiences than volunteers belonging to the other two groups.

IV.10.3.3 Commitment

Volunteers differed significantly with regards to the two commitment factors:

Affective commitment, F (2, 2592) = 20.41, $p < 0.001$ and Normative commitment, F (2,

2592) = 19.01, $p < 0.001$. Moreover, volunteers with less than four-year university

degrees rated both commitment factors significantly higher than the other two groups.

The other two groups did not differ from one another.

IV.10.3.4 Generativity

The mean scores for *Generativity* did not statistically differ among the various

education level groups.

Table 19 Means and Standard Deviations, One-Way ANOVA and LSD Tests by
Education Level

Variable	Less than College	University graduate	Post-graduate degree	F scores and Sig.
	M (*SD*)	M (*SD*)	M (*SD*)	
Motivation				
Helping the environment	4.11 (0.80)^b	4.18 (0.85)	4.22 (0.85)^a	F (2, 2592) = 3.10*
Project organization	3.64 (0.85)^a	3.43 (0.89)^b	3.31 (0.92)^c	F (2, 2592) = 27.58***
Values	3.68 (0.84)^a	3.55 (0.85)^b	3.54 (0.82)^b	F (2, 2592) = 7.42***
Learning	4.04 (0.80)^b	4.09 (0.81)	4.15 (0.75)^a	F (2, 2592) = 3.87*
Career	1.79 (1.11)^a	1.84 (1.19)^a	1.52 (0.92)^b	F (2, 2592) = 21.90***
Social	2.89 (0.84)^a	2.78 (0.79)^b	2.71 (0.77)^b	F (2, 2592) = 10.09***
Satisfaction				
Organizational support	4.02 (0.71)^a	3.80 (0.69)^b	3.74 (0.68)^b	F (2, 2592) = 35.94***
Participation efficacy	4.29 (0.62)^a	4.21 (0.60)^b	4.21 (0.61)^b	F (2, 2592) = 4.74**
Sense of empowerment	4.17 (0.67)^a	4.09 (0.65)^b	4.07 (0.65)^b	F (2, 2592) = 5.59**
Group integration	4.27 (0.66)^a	4.10 (0.69)^b	4.11 (0.68)^b	F (2, 2592) = 16.44***
Commitment				
Affective commitment	3.98 (0.62)^a	3.82 (0.62)^b	3.79 (0.64)^b	F (2, 2592) = 20.41***
Normative commitment	3.49 (0.74)^a	3.34 (0.68)^b	3.28 (0.71)^b	F (2, 2592) = 19.01***
Generativity	3.66 (0.37)	3.67 (0.36)	3.70 (0.37)	F (2, 2592) = 2.58

$^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

IV.10.4 Employment Status

Hypothesis 10: Volunteers' motivation, satisfaction, commitment, and generativity differ based on employment status.

To determine whether TPWD volunteers experienced volunteering differently according to their employment status, respondents were grouped into three categories: employed (combined full-time employed and part-time employed; n = 851); unemployed (combined unemployed and looking for work and unemployed but not looking for work; n = 103); and retired (n = 1,521). Differences among motivation, satisfaction, commitment, and generativity values according to employment status were determined using a series of ANOVA tests, followed by LSD post hoc tests.

IV.10.4.1 Motivation

Using one-way ANOVA tests results showed that there were statistically significant differences in the values for *Helping the environment*, F (2, 2592) = 7.61, $p < 0.001$; *Learning, F* (2, 2472) = 3.96, $p < 0.05$, and *Career, F* (2, 2472) = 352.66, $p < 0.001$ (see Table 20). Findings from the LSD post hoc tests demonstrated that both employed and unemployed volunteers rated the *Helping the environment* factor significantly higher than retired volunteers. Unemployed volunteers were more likely to get involved in volunteering due to educational or career-related reasons than were retired volunteers. However, with regards to *Career* motivation, no notable differences were found between the employed and unemployed volunteers.

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IV.10.4.2 Satisfaction

Volunteers' levels of satisfaction differed by employment status. Specifically, volunteers who were unemployed (M = 4.23; SD = 0.67) and employed (M = 4.16; SD = 0.67) rated *Sense of empowerment* considerably higher than retired volunteers (M = 4.08; SD = 0.64). However, retired volunteers (M = 4.21; SD = 0.64) scored *Group integration* significantly higher than employed volunteers (M = 4.06; SD = 0.71). There were no statistically significant differences in terms of *Organizational support, F* (2, 2472) = 1.02, *p* > 0.05 or *Participation efficacy, F* (2, 2472) = 1.56, *p* > 0.05.

IV.10.4.3 Commitment

No significant differences existed among the various employment status groups with regards to commitment factors.

IV.10.4.4 Generativity

Generativity differed according to employment status. A one-way ANOVA test was used to compare volunteer generativity with their level of employment. Surprisingly, the findings showed that retired volunteers (M =3.62; SD = 0.35) rated the generativity factor lower than did volunteers who were employed (M = 3.74; SD = 0.36) and unemployed (M = 3.73; SD = 0.40). However, this result was somewhat consistent with the results of the ANOVA tests on generativity by age group, where middle-aged volunteers scored significantly higher than older volunteers. There was no statistically significant difference between employed and unemployed volunteers with regards to generativity.

Table 20 Means and Standard Deviations, One-Way ANOVA and LSD Tests by Employment Status

Variable	Employed	Unemployed	Retired	F scores and Sig.
	M (*SD*)	M (*SD*)	M (*SD*)	
Motivation				
Helping the environment	4.23 (0.83)[a]	4.36 (0.71)[a]	4.12 (0.84)[b]	F (2, 2472) = 7.61[***]
Project organization	3.43 (0.93)	3.45 (0.89)	3.45 (0.88)	F (2, 2472) = 0.08
Values	3.55 (0.84)	3.70 (0.81)	3.60 (0.83)	F (2, 2472) = 2.06
Learning	4.11 (0.81)[b]	4.29 (0.72)[a]	4.07 (0.79)[b]	F (2, 2472) = 3.96[*]
Career	2.34 (1.31)[a]	2.42 (1.38)[a]	1.30 (0.64)[b]	F (2, 2472) = 352.66[***]
Social	2.81 (0.85)	2.82 (0.85)	2.78 (0.77)	F (2, 2472) = 0.31
Satisfaction				
Organizational support	3.87 (0.69)	3.88 (0.77)	3.83 (0.70)	F (2, 2472) = 1.02
Participation efficacy	4.25 (0.63)	4.32 (0.62)	4.22 (0.59)	F (2, 2472) = 1.56
Sense of empowerment	4.16 (0.67)[a]	4.23 (0.67)[a]	4.08 (0.64)[b]	F (2, 2472) = 6.11[**]
Group integration	4.06 (0.71)[b]	4.10 (0.78)	4.21 (0.64)[a]	F (2, 2472) = 13.97[***]
Commitment				
Affective commitment	3.84 (0.63)	3.95 (0.64)	3.86 (0.62)	F (2, 2472) = 1.23
Normative commitment	3.36 (0.69)	3.34 (0.71)	3.37 (0.71)	F (2, 2472) = 0.11
Generativity	3.74 (0.36)[a]	3.73 (0.40)[a]	3.62 (0.35)[b]	F (2, 2472) = 29.57[***]

[*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$

CHAPTER V

DISCUSSION AND CONCLUSIONS

V.1 Introduction

Committed volunteers are treasured assets to natural resource management agencies, since these organizations must often mobilize a volunteer force to compensate for shortages caused by limited funding (Connally, 1982; Follman, 2015; Rettie, 1995; Runte, 2010). By recruiting volunteers, environmental management agencies are able to resolve specific natural resource-related challenges and deliver quality services (Ryan *et al.*, 2001). The success of a volunteer program lies in the manager's ability to understand the factors that drive individuals to participate, feel satisfied with their volunteering experience, and continue to serve in a volunteer capacity (Bruyere & Rappe, 2007). Despite research highlighting the significant contributions that volunteers make to the success of natural resource agencies and organizational programs (Ryan *et al.*, 2001), notable gaps still exist in our understanding of environmental volunteers.

Drawing from the literature on environmental volunteerism, my purpose in this study was to develop a comprehensive model for examining the effects of volunteer motivation, satisfaction, and generativity on volunteers' commitment to natural resource-based volunteerism. My hypothesized model posited that volunteers' motivation, satisfaction, and generativity would positively influence their commitment to their service agency. Furthermore, I theorized the volunteers' levels of motivation, satisfaction, generativity, and commitment would differ based on each volunteer's specific characteristics (e.g., age, gender, education level, and employment status).

The last section of this research is divided into three main parts. The first provides a brief summary of the findings. The second discusses the theoretical and practical implications that researchers and practitioners can draw from the results. The final section presents some recommendations for future research.

V.2 Summary and Discussion of the Findings

First, I examined the demographic and service characteristics of the respondents. Next, I analyzed this research's hypothesized model, which determined the effects of volunteers' motivation, satisfaction, and generativity on their level of commitment. Finally, I examined the differences among these environmental volunteers in terms of their various socio-demographic characteristics.

V.2.1 Respondents' Demographic Characteristics

This study offered a view of environmental volunteers' attributes, a topic that has not been given adequate attention in previous studies. The volunteers who participated in this research were primarily white (88.1%), female (54.4%), 60 to 69 years of age (40.9%), and retired (58.8%). Most held undergraduate degrees or above (70.7%), and earned annual incomes higher than $60,000 (61.5%). These demographics are common to many environmental volunteer projects. For example, Wright *et al.* (2015) found that volunteers for a citizen science program called the Second Southern African Bird Atlas Project tended to be white, older, well-educated, and wealthy.

However, in comparing this study group to the census data the respondents were not representative of the general population of Texas (U.S. Census Bureau, 2015). The most prominent differences from the overall population in Texas were in the areas of

race, age, education, and income. Racially/ethnically, Texas is relatively diverse; Caucasian/White residents comprise the largest racial group, at 43.0% (U.S. Census Bureau, 2015); however, 88.1% of the individuals participating in this survey were White. Hispanic residents make up 38.8% of the population of Texas and represent the second largest racial group (U.S. Census Bureau, 2015), yet only 5.7% of the respondents identified themselves as Latino/Hispanic. African American residents comprise 12.5% of the Texas population (U.S. Census Bureau, 2015); however, only 1.4% of the respondents in this study classified themselves as African American.

Almost half of the TPWD volunteers (49.9%) were 65 years or over, but persons 65 years and older make up only 11.7% of the Texas population. As the Baby Boomers continue to age, the size of the elderly population will undoubtedly increase throughout the nation. By 2025, Texas will have the third largest population of elderly citizens (U.S. Census Bureau, 2015). Researchers (e.g., Pillemer & Wagenet, 2008; Tonn, Waidley, & Petrich, 2001; Wells & Pillemer, 2015) have argued that the rapidly growing older population has the potential to play a large and specific role in assisting with environmental problems, specifically by engaging in volunteer programs. Natural resource management agencies like TPWD should efficiently utilize this potentially sizable resource by creating supportive environments where older adults can assume meaningful roles and thus make a positive difference as environmental volunteers (Pillemer & Wagenet, 2008; Wells & Pillemer, 2015).

Of the participants in this research, 70.7% had received at least a university education; in contrast, only 24.3% of the population of Texas has college degrees or

higher (U.S. Census Bureau, 2015). The study sample also appears to be wealthier than the overall population of Texas. A vast majority of respondents (61.5%) reported an annual household income of $60,000 or higher, while the Texas median household income reported by the U.S. Census Bureau for 2015 was $52,576.

A sizeable number of studies have identified the "general characteristics" of volunteers, who tend to be well educated and affluent (Mutchler, Burr, & Caro, 2003). Previous research has also uncovered several potential individual-level constraints that prevent those who have less formal education or lower incomes from volunteering (e.g., Wells & Pillemer, 2015; McPherson & Rotolo, 1996; Wilson & Musick, 1997; Danigelis & McIntosh, 1993). First, those who are more educated tend to have stronger connections with volunteer groups due to wider social networks, stronger cognitive skills, and various class-based behaviors and values. Conversely, those who are less educated often feel that they cannot contribute effectively, due to insufficient expertise or knowledge. Also, they tend to be relatively less aware of opportunities to volunteer in their communities. Second, health status has a significant influence on volunteer participation. Poor health, which is more likely to afflict the less-educated and lower income individuals, can prevent or limit volunteering. Given the lack of diversity in environmental volunteers examined for this study, TPWD should make an effort to determine how best to provide information about the program to diverse racial groups, younger generations, and less educated and lower income individuals.

V.2.2 Respondents' Service Characteristics

Regarding the most frequently cited recruitment information sources for the TPWD

volunteer program, the findings indicate that many volunteers learned of the opportunity through friends or family. Of the respondents who selected "Other" to describe where they first heard of the TPWD volunteer program, many learned of the opportunity through personal communications with other volunteers and staff during park visits. This is consistent with the findings of a study conducted by Shen (2012), who examined volunteers involved in the 2011 Fubon Taipei Marathon Running Sporting Event in Taiwan. Shen reported that many volunteers obtained recruitment information from friends who had participated as volunteers in prior years. From the results of this study, it appears that friends or family, other volunteers, and staff all play a key role in spreading positive messages about the TPWD volunteering opportunity. Given this fact, it is essential to create memorable and satisfactory experiences for the current volunteers, as volunteers who are pleased and committed are more likely to recommend this opportunity to others (Lee, Lee, & Lee, 2005).

Moreover, many respondents also identified the TPWD volunteer program's website as a prime source for learning about volunteer opportunities. This may be because the majority of the sample was highly educated and affluent. Thus, the program's monitoring team should keep its website up to date with information on the accomplishments of current volunteers, upcoming volunteer opportunities, etc.

The findings of this research also indicated that most volunteers were actively involved in the TPWD volunteer program, with over 72% of respondents claiming over one year of service and 185.7 hours dedicated to TPWD in 2015. This information implies that the TPWD volunteer program may be planned and managed in ways that

effectively use the volunteer workforce and provide satisfying and memorable

experiences to volunteers. As a consequence, it is likely that existing volunteers will

continue to dedicate their effort and time to this organization.

V.2.3 Identifying Environmental Volunteers' Motivation

Guided by previous research in this area, I hypothesized that environmental

volunteers' motivations could be divided into six categories, including: *Helping the*

environment, *Project organization*, *Values*, *Learning*, *Career*, and *Social.* The validity

of this set of constructs was tested and verified using CFA. Among these motivational

factors, respondents rated *Helping the environment* as the most compelling. The next

most important variables were *Learning* and *Values*, as shown in Table 11. However,

the need to gain career-associated benefits and build relationships with others were not

frequently reported and had low mean scores; this could be due to the average age of the

respondents. These findings suggest that the individuals participating in the TPWD

volunteer program were concerned for the environment, eager to gain new skills in and

knowledge about the natural world, and driven by a desire to express their personal

values. Also of note, environmental volunteers were not attracted by singular categories

of motivation; there were complex relationships among the desire to become volunteers

and the benefits of participation. The results of this study were consistent with work by

Asah and Blahna (2012), Bruyere and Rappe (2007), and Jacobsen *et al.* (2012), who

suggested that environmental volunteers were most often attracted by a desire to make

contributions to the environment and gain knowledge about nature; they were least

interested in career enhancement. In sum, the primary motivations that attracted

individuals to dedicate their time and effort to helping the natural environment were, in general, consistent with previous studies on environmental volunteerism. Moreover, from these data it is clear that their primary reason for environmental stewardship was concern for the next generation's living environment.

V.2.4 Identifying Environmental Volunteers' Satisfaction

This study identified four factors that influence volunteer satisfaction: *Organizational support*, *Project organization*, *Sense of empowerment*, and *Group integration.* Based on the mean scores for each factor, volunteers for the TPWD program were, overall, either satisfied with or neutral to their experience. These results were consistent with studies by Sander-Regier (2013) and Wright *et al.* (2015), who found that environmental volunteers were, in general, satisfied with their volunteering experience.

Among these four sub-dimensions, *Participation efficacy* was rated as having the highest level of influence on volunteer job satisfaction; it included items such as "the difference my volunteer work makes", "the opportunities I have to learn new things", "the fit of the volunteer work to my skills and interests", and "how worthwhile my contribution is". This result was consistent with Sander-Regier's study (2013), which showed that the sources of satisfaction for the environmental volunteers who worked to create and manage the Ottawa Fletcher Wildlife Garden in Canada included a sense of efficacy and the anticipated importance of their volunteer work. Moreover, the high rate of satisfaction with the dimension of *Participation efficacy* aligned with volunteers' motivations and their experience, given that respondents were found to be most

motivated by the desire to make a difference in the condition of the environment, preserve natural areas for future generations, and learn things through their volunteering experience. Since there was a positive connection between the fulfillment of volunteers' expectations and the program's level of retention, it can be assumed that assigning volunteers to opportunities that fit their skills and expectations will help organizations ensure program loyalty from the recruitment stage onward (Hunter, 2004).

While the majority of volunteers showed high levels of satisfaction with their volunteer experience, as suggested by Hunter (2004) that the areas of low satisfaction demand examination. Despite the high overall satisfaction rating, *Organizational support* received the highest number of "Very Dissatisfied" and "Dissatisfied" responses, and therefore had the lowest mean score. *Organizational support* is determined by variables related to volunteers' relationships with paid staff and the communication, recognition, and support provided by their volunteer organization. The relatively low level of satisfaction in this area indicates a need for improvement in communication between the organization and its volunteers, perhaps by regularly giving feedback and recognition (Hunter, 2004). More regular communication through meetings, websites, newsletters, and emails would help volunteers to feel respected and appreciated, and consequently would foster feelings of connection.

V.2.5 Identifying Environmental Volunteers' Commitment

The validity test for the CFA factorial structure of commitment demonstrated that the construct consisted of two distinguishable dimensions, *Affective commitment* and *Normative commitment*, as proposed by Allen and Meyer (1990; Meyer & Allen, 1991).

In response to low factor loading, the item "I think that I could easily become as attached to another organization as I am to TPWD" was observed to inaccurately represent the construct, and was deleted from the analyses. The results showed that volunteers who participated in the TPWD environmental volunteer program were, in general, committed to TPWD. Moreover, the mean score for *Affective commitment* was higher than for *Normative commitment*, suggesting that TPWD volunteers in the present study were more psychologically bonded to this natural resource management agency via *Affective commitment* than *Normative commitment*. These findings were consistent with Asah and Blahna (2013). These researchers suggested that compared to *Normative commitment*, *Affective commitment* was a more salient factor in influencing environmental volunteers' decision to continue to provide service to a particular agency.

According to Harris (2012), *Affective commitment* has to do with a member's willingness to get involved with an organization, as well as their acceptance of and emotional attachment to it. *Normative commitment* means that members feel a sense of responsibility to support and continue to volunteer for the organization. Meyer, Allen, and Smith (1993) contended that those "with a strong affective commitment remain with the organization because they want to and those with a strong normative commitment remain because they feel they ought to do so" (p. 539).

Affective commitment occurs after members' entry into the organization, and may be the result of self-identification; their sense of identity is consistent with that of the organization (Meyer & Allen, 1997; Mowday, Porter, & Steers, 1982). *Normative commitment* exists prior to volunteers' organizational memberships, which may be due

to the internalization of volunteers through familial or cultural socialization (Hackett, Bycio, & Hausdorf, 1994; Meyer *et al.*, 1993).

In this regard, the high level of *Affective commitment* of TPWD volunteers demonstrated their acceptance of TPWD's goals and values as their own, a willingness to exert effort on behalf of TPWD to achieve those goals, and strong emotional attachment to the organization (Cuskelly & Boag, 2001). Conversely, the relatively low level of *Normative commitment* may have been because members were influenced by the increasing emphasis on individualism and personal interests (rather than close community ties) seen in today's society (Hunter, 2004).

V.2.6 Identifying Environmental Volunteers' Levels of Generativity

Environmental volunteerism appears to be a highly suitable means of access for individuals with considerable levels of generative concern, including those who want to devote their time and energy to positively changing the environment, obtaining more knowledge about environmental issues, and leaving a legacy for future generations (Wells & Pillemer, 2015). In the current study, TPWD volunteers' motivations tended to align with the core components of generativity; they were highly driven by *Helping the environment*, *Learning*, and *Values.* This encourages environmental program managers to include generativity-related questions on volunteer applications, allowing them to select volunteers likely to be motivated, satisfied, and willing to engage for the long term.

Based on these data collected here, I concluded that TPWD volunteers exhibited high levels of generative concern. This finding was supported by Urien and Kilbourne

(2011), who reported that compared to subjects who did not engage in environmental activities, environmental volunteers had higher levels of generativity.

The relatively high level of generativity reported by all TPWD volunteers signified a positive match between the volunteers' motivations and their choice of volunteer activity. Also, this result is consistent with the view that generativity is a part of identity development, which is demonstrated in maintaining and creating new expressions of identity throughout the adult years (McAdams & de St. Albin, 1992; Scott *et al.*, 2003). Understanding an individual's generative concern would help natural resource management agencies recruit and retain those most likely to commit to volunteering over the long-term.

V.2.7 Path Analysis of the Conceptual Volunteer Model

V.2.7.1 Relationships among Motivation, Satisfaction, and Commitment

The hypothesized conceptual model presented in this dissertation was partially derived from the framework suggested by Clary *et al.* (1998) in their study of the functional motivation approach. According to this work, individuals initially participate as volunteers to satisfy particular functional needs. Those whose initial needs/motives are met by volunteering enjoy psychological rewards and report higher levels of satisfaction with their experience. Furthermore, they are more willing to continue to serve the organization as volunteers (Cnaan & Goldberg-Glen, 1991). By contrast, a dissatisfied volunteer is less likely to recommend the program (Lee, 2009) and more likely to cease volunteering (Galindo-Kuhn & Guzley, 2001; Wright *et al.*, 2015). Therefore, it is in the best interest of natural resource management agencies to

understand the separate and combined effects that their volunteers' motivation and satisfaction with the volunteer experience have on their commitment to their host organization. Integrating such knowledge into volunteer programs will enable managers to employ adaptive management practices (Wright *et al.*, 2015), and thus facilitate the recruitment of new volunteers and retention of the experienced volunteer staff already at their disposal (Ridgeway, 2003).

Motivation → Satisfaction

Structural equation modeling was conducted to simultaneously test the hypothetical connections among the variables in order to determine their predictive utility. As expected, respondents' motivation represented by the factors: *Helping the environment*, *Project organization*, *Values*, *Learning*, *Career*, and *Social*, was found to be a positive antecedent to their levels of satisfaction with the volunteering experience. This relationship underscores the importance of finding motivated volunteers. Moreover, it suggests that volunteers who reported that their desires were fulfilled by the TPWD volunteer program were also likely to experience higher levels of satisfaction with the program. This is consistent with previous functional analyses of nature-based volunteerism (e.g., Jacobsen *et al.*, 2012; Wright *et al.*, 2015) that has documented how volunteer motivation is positively related to a participant's level of satisfaction.

Satisfaction → Commitment

In accord with the functional motivation approach (Clary *et al.*, 1998), satisfaction was also found to be an important driver of a volunteer's commitment to TPWD. In other words, a high level of volunteer satisfaction can facilitate a psychological

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attachment to the volunteer program and sponsoring organization. This finding indicates that TPWD volunteers who were satisfied with their volunteering experience were more willing to dedicate their energy, had become emotionally attached, and believed they had an ongoing obligation to continue volunteering for TPWD. Conversely, they were less likely to distance themselves from assigned projects. The critical role of volunteer satisfaction in volunteer retention has previously been described in broader research on volunteering (e.g., Bachman, 2014; Hyde, Dunn, Wust, Bax, & Chambers, 2016; Shen, 2012). For example, Shen (2012) found that highly satisfied volunteers for the 2011 Fubon Taipei marathon were inclined to continue volunteering for future events. Although path analysis precludes inferences regarding causal links, the significant associations among volunteers' motivation, satisfaction, and commitment provide heuristic evidence of the appropriateness of applying the functional approach to environmental volunteers (Bruyere & Rappe, 2007; Finkelstein, 2008; Wright *et al.*, 2015).

Motivation → Commitment

Previous studies on natural resource-based volunteerism (e.g., Bruyere & Rappe, 2007; Grese *et al.*, 2000; Jacobsen *et al.*, 2012) asked motivation-related questions in their effort to understand the reasons behind individuals' volunteering behaviors. The current study took one step further and used motivational inquiry to determine what sustained individuals' volunteerism. Just as volunteers' motivation was a major determinant of satisfaction, it was also a determinant of commitment, but to a much lesser extent. This finding is consistent with Asah and Blahna's (2012; 2013) research

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on how motivations can predict volunteers' commitment to conservation-based volunteerism. Through linear-regression models, they found that volunteers' dedication to urban conservation was significantly influenced by their personal, social, and community-based motivations. The direct effect of motivation on organizational commitment indicates that volunteers' perception of an opportunity to receive intrinsic rewards could help them to cultivate their affective attachment and normative obligation to their sponsor organizations. These types of benefits may include alleviating their concern for the environment, engaging in personal growth, and expressing their values.

Motivation → Satisfaction → Commitment

Sparse research has examined the indirect effect of volunteer satisfaction on the relationship between volunteers' motivation and organizational commitment within the context of nature-based volunteerism. Bang, Ross, and Reio (2012) emphasized that research focusing on these variables (e.g., motivation, satisfaction, and commitment) needed to use SEM to focus on the potential mediations among the various relationships. In so doing, researchers would be better able to understand how and why relationships exist between predictors and dependent variables (Bennett, 2000; Peyrot, 1996).

As illustrated in Figure 3 and Table 15, satisfaction with the volunteer experience mediates, to some degree, the effect of a volunteer's motivation on their organizational commitment. It should be noted that volunteer satisfaction indicated a mediating role in the relationship between motivation and organizational commitment. This relationship highlights that well-motivated volunteers had a higher chance of being satisfied with their volunteering experience, ultimately facilitating their commitment to their volunteer

program and sponsoring agency, even considering the influence of their motivations on their level of organizational commitment (Bang *et al.*, 2013). This finding was consistent with the study conducted by Green and Chalip (2004), who reported that the rewards volunteers expected to gain from volunteering for the Sydney Olympic Games were strong predictors of their eventual level of commitment. That effect was visible from the level of satisfaction they gained from their experience.

Based on the results of the current study, it was concluded that the intrinsic rewards (e.g., learning new things about nature and preserving the environment for the next generation) volunteers obtained from participation positively influenced their level of satisfaction. And satisfaction itself was an important driver of volunteers' organizational commitment. The effects of these volunteers' motivations do not strictly accrue as a consequence of satisfaction, because there are also direct effects on volunteers' organizational commitment. This suggests that fostering a satisfying volunteer experience and developing a commitment to a particular organization (e.g., TPWD) may require managers to understand volunteers' expectations and subsequently match them to different activities (Bruyere & Rappe, 2007; Ryan *et al.*, 2001; Wright *et al.*, 2015).

V.2.7.2 Relationships among Motivation, Satisfaction, Commitment, and Generativity

One of the purposes of this study was to use generativity in Erikson's psychosocial development theory as a framework for investigating individuals' experiences of environmental volunteerism. Many of the activities that are characterized as volunteer work share much in common with generativity (Snyder & Clary, 2004). This is especially evident in environmental volunteering, where participants have the

opportunity to satisfy their hope of improving the natural environment for the sake of future generations (Warburton & Gooch, 2007). The inclusion of generativity in the conceptual model will enable future researchers to explore the connection between environmental volunteerism and generativity as a form of pro-social action. This will provide an additional layer of understanding of the processes and phenomena of both volunteerism and generativity (Snyder & Clary, 2004).

Generativity → Motivation

The results of the structural equation model demonstrated that generative concern positively affected volunteer motivation, and explained a large percentage of the variance. In other words, individuals who had high levels of generativity were strongly motivated in ways that characterized them as consistent with environmental volunteers (e.g., concern for the environment, eager for personal growth, and keen to express their values). This finding provides empirical support for the commonalities among the functional motivations of environmental volunteerism and generativity, especially in terms of encouraging non-volunteers to volunteer (Warburton & Gooch, 2007; Warburton, McLaughlin, Pinsker, 2006).

This was also found to be true in the study by de Espanés *et al.* (2015), which examined volunteers from five volunteer organizations in Argentina; generativity predicted all of the motivational factors for volunteering that were considered in that research (e.g., career, social, values, enhancement, understanding, and protectiveness). Furthermore, de Espanés and colleagues found that generative concern's predictive value differed for each of these six motivational factors. Generative concern was most

predictive for motives related to personal growth and social connection. This result

underscores the possibility that "generativity may, like volunteerism, stem not only from

other-oriented concerns but also from self-oriented ones" (Snyder & Clary, 2004. p.234).

Generativity → Satisfaction

The relationship between generativity and satisfaction has been discussed in the

extant literature, with particular attention paid to the elderly who participate in voluntary

post-retirement activities (e.g., Dendinger, Adams, & Jacobsen, 2005; Pundt, Wöhrmann,

Deller, & Shultz, 2013). In the present research, these constructs were applied to the

context of volunteers aged 18 to 89, who gave their time and efforts to environmental

concerns. Overall, the findings from the model support the contention that generative

concern positively relates to volunteers' satisfaction. This illustrates that the participants

considered the essential precursors of an ideal framework for environmental

volunteerism to include the possibility of making a contribution to new generations,

improving themselves through learning, and transmitting a legacy into the future. This

finding supports the positive influence of generativity on satisfaction with volunteering

for environmental purposes. Moreover, in my sample, generative concern played a

significant role in predicting general satisfaction with the volunteer experience; this

aligns with relationships reported in Pundt *et al.*'s study regarding generativity as a

motivation and life/work satisfaction.

Generativity → Commitment

The SEM results indicated that generativity was a strong predictor of volunteers'

commitment to their host organization. Although the cross-sectional nature of this

research leaves unanswered questions about the causal connection between these two variables, this preliminary finding empirically supports the notion that volunteers' generativity plays an important role in understanding their level of commitment. The positive and direct connection between volunteers' generative concerns and their organizational commitment implies that TPWD volunteers may have become emotionally attached to TPWD even before engaging in any actual volunteer work, because long before they became volunteers, they believed that opportunities to satisfy socially significant desires were very important. It is possible that environmental volunteers perceive the existence of avenues of influence even before they align themselves with a particular organization (Dailey, 1986).

In a similar fashion, de Espanés *et al.* (2015), the only study found to explicitly focus on this relationship, argued that volunteers' generative concern had significant cross-sectional predictive power relative to organizational commitment. Despite the strong predictive utility of generativity for forecasting volunteers' level of dedication, there is little systematic research on the relationship between these two variables, especially in the context of environmental volunteerism. Considering the sparse attention this topic has received in the literature, the current research fills a gap by exploring the role of generativity as a predictor of an individual's commitment to environmental volunteerism.

Generativity → Motivation → Satisfaction → Commitment

As an examination of the model (see Figure 3) shows volunteers' generativity had an indirect effect on their satisfaction through its effect on their motivation. Volunteers'

generativity was also indirectly related to organizational commitment through both motivation and satisfaction. These findings indicate that volunteers' generative concerns that are unrelated to their satisfaction or organizational commitment may still affect their satisfaction or organizational commitment through the selection of specific volunteer activities.

In sum, the results of the structural equation model reveal a pattern in which volunteers' generative concerns were positively and either directly or indirectly related to their motivation, satisfaction, and commitment. Taken together, this research provides empirical support for a conception of generativity that focuses on the psychological purposes served by sustained volunteer behavior. Specifically, volunteers' generative concerns were assessed regarding their predictive utility for encouraging non-volunteers to volunteer, ensuring volunteers' satisfaction with their experience, and sustaining their involvement in volunteer activities.

V.2.8 Differences within Socio-demographic Groups

Previous research (e.g., Bachman, 2014; Chen, 2010; Hyde *et al.*, 2016) has found that the socio-demographic characteristics of volunteers are important contributors to their motivation, satisfaction, and level of commitment. Understanding the relationships among volunteers' socio-demographic variables and their psychological characteristics will provide managers with social perspective to understand why people volunteer, what determines their satisfaction with the volunteering experience, and how they come to commit themselves to further service to their host organizations (Musick & Wilson, 2008).

With volunteers' motivation, satisfaction, commitment, and generativity acting as dependent variables, volunteers' age, gender, education level, and employment status were applied to ANOVA tests to answer Research Question 2: Are there differences in how people with various socio-demographic characteristics experience volunteering for natural resource management agencies? The results showed that volunteers' motivation, satisfaction, commitment, and generativity all differed substantially by a volunteer's age, gender, education level, and employment status. Some of these findings were consistent with earlier studies, while others were contradictory.

V.2.8.1 Age

In the current study, four out of six motivations for volunteering varied with age. This finding supports the hypothesis that individuals use volunteering to seek out specific rewards at different life stages (Boling, 2005). Consistent with previous research (e.g., Clary *et al.*, 1996; Trauntvein, 2011), *Learning*, *Career*, and *Social* motivations were more prevalent among younger volunteers. In Boling (2005), the subjects participated in volunteer activities to satisfy age-related concerns. For example, for younger volunteers (aged 18 to 39) who were either still in college or not yet fully immersed in the working world, volunteering offered enticing benefits such as acquiring new knowledge, building a resume, making career contacts, and testing different career options.

It is somewhat surprising that the motive of *Helping the environment* was negatively associated with age. Moreover, even though *generativity* was most salient to middle-aged volunteers (as Erikson predicted), it was not significantly different for

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younger volunteers and was rated the lowest for older volunteers. There are two possible explanations for these results. The first was proposed by Boling (2005) who stated that young adults who actively seek out volunteer opportunities may be more mature in their psychosocial development, as compared to their counterparts who do not volunteer. Therefore, he argued that young and middle-aged individuals could display very similar levels of generative concern. Another possible explanation is related to the opportunity to express generativity outside of the volunteer context. According to McAdams *et al.* (1993), "Adults are generative in different ways, sometimes through their beliefs and concerns, sometimes through their commitments and actions, and so forth" (p. 1013). Thus, individuals could express generative concern through diverse behaviors and within various contexts (de Espanés *et al.*, 2015), such as having and raising children, preserving traditions, and community participation (Peterson, 2006). If older volunteers already felt as if they could express their generativity-based concerns in various settings (e.g., familial, religious, political, and civic), it may be unreasonable to expect them to express a higher level of generative concern than younger individuals by donating their time as volunteers (Scott, *et al.*, 2003).

In this study, all four factors of volunteer satisfaction differed significantly among the various age groups. These findings were in contrast to those of Trauntvein (2011), Shen (2012), and Hyde *et al.* (2015), where volunteer satisfaction was found to be consistent across the age groups. In particular, age was negatively related to all satisfaction factors; the exception was *Group integration*, which was positively related to age. One possible reason for why young and middle-aged volunteers had more

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favorable opinions of *Organizational support*, *Participation efficacy*, and *Sense of empowerment* than did older volunteers is that they were highly motivated by a series of motivations (e.g., *Helping the environment*, *Learning*, *Career*, and *Social*) and received substantial corresponding benefits. The positive correlation between age and *Group integration* for satisfaction was unexpected, as the *Social* motive was negatively related to age. *Group integration* was the motive rated highest by older volunteers, indicating that the relationships older volunteers formed with paid staff and their fellow volunteers were very satisfying. The explanation for this result may be that older and younger volunteers had different expectations with regards to their volunteering experience fulfilling their need for social interaction; this is reflected by their different responses for the *Social* motive. Since older volunteers had fewer expectations, it is possible they were satisfied with an average level of group integration, whereas younger volunteers with higher expectations may have been more likely to be selective with regards to this element (Greenwell, Fink, & Pastore, 2002; Oliver, 1980).

Age was found to be a moderate predictor of *Affective commitment*; middle-aged volunteers (40 to 65 years old) had the highest scores in this area, followed by older volunteers and, finally, younger volunteers. Choi (2003) and Trauntvein (2011) found that age was positively related to volunteer commitment (measured by time spent volunteering and duration of volunteer service). They suggested that the higher level of commitment found in older volunteers had to do with their retirement status; they had become more active in their unpaid volunteer work. The findings from this study

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partially support this explanation, because a substantial portion of the middle-aged group (40-65 years old) had already retired from paid work.

The findings of this research also showed that volunteers' level of commitment decreased as they aged. This pattern provides partial support for the compensation theory of successful aging (Baltes & Baltes, 1990), which suggests that as people age, the number of domains in which they productively function tends to decrease (Burr, Mutchler, & Caro, 2007). This is evident in areas like volunteerism, where older people reduce their time commitment and prefer to devote the bulk of their energy to basic life tasks (e.g., home maintenance) (Burr, Mutchler, & Caro, 2007).

V.2.8.2 Gender

The results from the independent *t*-tests showed that volunteers' motives differ by gender in several areas. Female TPWD volunteers gave significantly higher ratings than their male counterparts in expressing concern for the environment and others, a desire to work for a well-organized project, and striving for personal growth. These gender differences support findings from a study of nature-based volunteers in which females reported being more motivated by *Helping the environment*, *Career*, *Learning*, and *Values* (Jacobsen *et al.*, 2012). Switzer, Switzer, and Baker (1999) used the social role theory of helping (Eagly & Crowley, 1986) to explain the effect of gender on the motivation to volunteer. Switzer and colleagues (1999) suggested that an individual's motivation to help is consistent with their gender role. Generally, females are more likely to be motivated to help others; this may be the result of their position as nurturers and caregivers, which they internalize through familial or cultural socialization. The

normative societal expectations of men tend to be ones of heroism and chivalry. Accordingly, they tend to be more enthusiastic about spontaneous endeavors that are not necessarily related to volunteerism (Switzer, *et al.*, 1999). Not surprisingly, then, female TPWD volunteers reported higher levels of satisfaction with the volunteer program on all factors. This result indicates that female TPWD volunteers who were highly motivated received substantial psychological rewards from their volunteering.

The results of this research showed that there were no statistically significant differences in terms of either *Affective* or *Normative commitment* between male and female participants. The absence of significant differences by gender with regards to organizational commitment supports previous findings (e.g., de Espanés *et al.*, 2015; Turner & Chelladurai, 2005). For instance, Turner and Chelladurai (2005) studied the head coaches of NCAA sports. They found that gender did not influence organizational commitment.

Based on earlier research (Taniguchi, 2006), female volunteers were generally more constrained by family responsibilities (e.g., taking care family members) than were their male counterparts. This time constraint was significantly and negatively associated with women's volunteering behavior. Women were more likely to express lower levels of commitment to the serving organization (Turner & Chelladurai, 2005). Nevertheless, female volunteers in this research were actively engaged in the TPWD volunteer program, and thus were not representative of women who had already withdrawn from volunteering. The consistency in commitment between the gender groups could because

that the sample in this study was generally older, and therefore had fewer family commitments.

Table 18 demonstrates that generativity shows similar patterns across gender. This result contradicts the findings of Karacan (2004), who claimed that gender influences the development of generativity. In general, females are expected to take care of and nurture others; consequently, they may display higher levels of generative concern than males do. However, this discrepancy could also be the result of the population studied because Karacan (2014) did not study volunteers. Thus, additional investigation within the context of volunteerism is warranted.

V.2.8.3 Education Level

Education level was found to significantly impact all six motives. In the literature, conclusions on this topic vary from study to study, and no definitive consensus on this relationship has emerged. For example, Shen (2012) and Caldwell and Andereck (1994) found no statistically significant connection between education and motivation. However, Trauntvein *et al.* (2011) found a significant relationship between volunteers' education and how much they were driven by various motives.

In this research, less-educated individuals who joined the TPWD volunteer program were more likely to expect their experience to contribute to future career opportunities, provide networking contacts and work experience, and be a venue for expression of their personal values. Conversely, volunteers with post-graduate degrees were more likely to be driven by altruistic or learning-based motives. These findings support Boling (2005), who claimed that certain benefits may be more salient to some volunteers than others

due to the particular individual's concerns; these, in turn, may be reflected in that person's reasons for volunteering. Compared to volunteers with higher levels of education, volunteers with less than four-year university degrees may be more concerned about their careers, social standing, and other related issues.

The results also demonstrated that volunteers with less than four-year university degrees were distinguishably more satisfied with their volunteering experience than were the other two groups of volunteers. This correlational pattern was expected, since volunteers with less than four-year university degrees were found to be more motivated than others; they also appeared to be more satisfied with their volunteering experience. This result supports Gonzalez's study (2009), which found that volunteers tend to be satisfied when they are simply highly motivated.

The one-way ANOVA test showed that education level had a negative correlation with volunteers' *Affective* and *Normative commitment*. Specifically, volunteers with less than four-year university degrees rated both commitment factors significantly higher than did volunteers with university degrees or above. One explanation may be that volunteers with certain characteristics (higher levels of education, more contacts, stronger cognitive skills, etc.) may be better able to replace their host organization, if they see fit to do so. Because they feel they have the option to leave if they desire, they are in general less committed to their current organization (Mesch, Tschirhart, Perry, & Lee, 1998). This finding corresponds with that of Agostinho and Paço (2012) and Hsieh (2000), where education was found to be an important negative predictor of commitment.

Finally, a volunteer's level of generativity was unrelated to how much education they had received. Prior studies have shown that compared to those with lower levels of education, those with higher levels may have a greater sense of generativity (e.g., Choi, 2003; Griffin & Hesketh, 2008). The fact that we investigated individuals who were highly motivated by generativity to participate in volunteer activities may explain why this result is contrary to past research, and suggests that education level may not have a strong effect on generativity in the context of volunteerism.

V.2.8.4 Employment Status

Findings from the one-way ANOVA tests conducted for this research suggested that employment status did have an impact on volunteers' motivational structure. Specifically, volunteers who were unemployed seemed to have a greater desire to learn new things and obtain career-related benefits through volunteering. This is not surprising because unemployed volunteers tend to be concerned about job status and hope to attain new skills and knowledge that will eventually be translated into career-related benefits. Furthermore, being unemployed seems to relate to an increased desire to help the environment, as compared to volunteers who are retired or employed. Previous studies (e.g., Boling, 2015; Clary *et al.*, 1998; Principi, Warburton, Schippers, & Rosa, 2012) have shown that individuals suffer negative feelings associated with their unemployment status. Volunteering for socially significant reasons such as *Helping the environment* may help them find relief from these negative feelings.

The results also found that volunteers who were either unemployed or currently employed rated *Sense of empowerment* considerably higher than did retired volunteers.

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This finding is not unexpected, given that both of these categories of respondents were younger than retired volunteers, and thus may have been more sensitive and attuned to empowerment issues (e.g., "The access I have to information concerning TPWD", "The freedom I have in deciding where and how to volunteer", and "The chances I have to utilize my knowledge and skills") than were retired volunteers. However, retired volunteers scored *Group integration* significantly higher than employed volunteers. It stands to reason that through the volunteering experience, older volunteers found other avenues to be social (e.g., spending time with others, and making friendships while volunteering) because employment was no longer an option. Previous research has yielded various results on the impact of employment status on volunteer satisfaction. For instance, Schoeny (1997) examined the job satisfaction and level of commitment of volunteer employees in nonprofit organizations. He found that volunteers who worked full time rated their satisfaction higher than did the unemployed.

Consistent with previous research (e.g., Cnaan & Cascio, 2008), this study found no statistically significant differences among the various employment status groups with regards to volunteer commitment. However, some research (e.g., Clary *et al.*, 1996) has suggested that since retired individuals have greater time availability (Einolf, 2009), they are more likely to volunteer for service organizations. Nevertheless, this study found that employment status was not of much importance to organizational commitment nor consistent with TPWD volunteers. More importantly, the results of this research support Cnaan and Cascio's (2008) claim that volunteers' level of commitment is not related to

their amount of free time. Unemployed or retired individuals and those who worked full or part-time were found to be more or less equally committed to their organizations.

Consistent with previous studies on generativity (e.g., MacDermid, Heilbrun, & Dehaan, 1997; Peterson & Stewart, 1996; Zhan, Wang, & Shi, 2015), this study showed that employment status was an important predictor of generativity. Both employed and unemployed volunteers rated generativity significantly higher than did their retired counterparts. Gonyea and Googins (2006) explained that working individuals were more likely to have opportunities to engage in acts of social responsibility, which were likely to promote their sense of generativity.   Similarly, unemployed volunteers may seek to feel useful, and thus volunteer to make a difference in that respect.

This study is one of a few exploring socio-demographics variables and experiences of environmental volunteers. Thus, in learning more about these relationships, managers may be better able to apply effective strategies to recruit, satisfy, and retain volunteers (Silverberg, Backman, & Backman, 2000).

V.3 Theoretical Implications

The results derived from this study have several theoretical implications for future research in this area. I will discuss them in detail in the following section.

V.3.1 Research on Environmental Volunteerism

The cumulative literature on volunteerism has largely been focused on the antecedents of volunteering associated with a program's success. Despite delivering valuable information regarding who is likely to volunteer, such a focus does not provide sufficient information regarding the dynamic nature of the psychology of volunteerism.

The hypothesized conceptual model put forth in this study uses a functionalist approach, Erikson's theory of generativity, a volunteer functional inventory, volunteer satisfaction, and organizational commitment indices as components of the theoretical foundation of its validation. The constructs (e.g., *Motivation*, *Satisfaction*, and *Commitment*) applied in this study were proven to be psychometrically reliable, and adequate representations of the concepts. More importantly, it demonstrates the relationships among volunteers' motivation, satisfaction, commitment, generativity, and socio-demographics. The relationships among the socio-demographics variables and experiences of environmental volunteers were also explored in this study. The findings from this study will enable researchers to better understand the psychological variables that affect volunteers, how they relate and affect one another.

V.3.2 Inclusion of Generativity

Theoretically, the model will provide an increased understanding of the volunteer experience; this is due to the inclusion of psychosocial development, and specifically, generativity. Snyder and Clary (2004) indicated that it was necessary to study the utilization of generativity within the context of volunteerism. While a model containing volunteers' motivation, satisfaction, and commitment was confirmed in a previous study (e.g., Green & Chalip, 2004), the four base models were first used in this research. Therefore, the main contribution of this work is that it provides further empirical support and justification for the role of generativity as a predictor of environmental volunteers' motivation, satisfaction, and commitment. Moreover, these findings shed light on the dynamics of and phenomena related to both volunteerism and generativity.

The hypothesized conceptual model was also determined to provide a reasonable framework for TPWD volunteers and a basis for further development of the volunteering model. In general, the findings showed in this research demonstrated that volunteers' motivation, satisfaction, and generativity all had direct and positive effects on volunteers' organizational commitment. Besides the direct effects, I found evidence that generativity positively but indirectly impacted volunteers' organizational commitment via volunteer motivation and satisfaction, and volunteer motivation had a positive but indirect effect on volunteers' organizational commitment via satisfaction. These findings suggest that there were complex relationships among these constructs. As suggested by Bachman (2014), these connections would not have been explored if the study had only investigated direct relationships by using traditional statistical methods (e.g., the multiple regression method).

V.3.3 Differences within Socio-demographic Groups

In the bivariate analyses results, there were significant relationships among the selected socio-demographics (age, gender, education level, and employment status) and volunteers' motivation, satisfaction, commitment, and generativity. In other words, environmental volunteers experience volunteering differently based on their socio-demographic backgrounds. The sample data indicated that these socio-demographic variables were good predictors of the psychologically relevant benefits of volunteerism. These findings may give researchers reason to more deeply investigate socio-demographic variables, especially those assumed to affect volunteers' participation in and attachment to volunteering behavior and particular service organizations.

V.3.4 Application of SEM

Methodologically, a majority of the previous studies in this area applied multiple regression methods to examine the relationships among the variables. By using this method, researchers were only able to examine one part of the model at a time.   This work, however, used Structural Equation Modeling to assess the direct and indirect relationships among factors that influence volunteers' experiences with volunteering. This method allows researchers to examine the entire model while simultaneously taking the error terms for each factor into account; therefore, it provides a more comprehensive and accurate view of the relationships. It is believed that the present study will make an important contribution to this area of academic research.

V.4 Practical Implications

There are many ways in which managers of volunteer programs benefit from research on the psychological aspects of environmental volunteerism. Hunter (2004) interviewed such managers and found that a lack of commitment or follow through in volunteers was the most common challenge faced by program coordinators. Natural resource management agencies with high rates of volunteer turnover have to recruit, orientate, and train new volunteers to fill the vacancies created when members withdraw (Cuskelly & Boag, 2001). Moreover, environmental organizations often can't efficiently make use of their volunteers (for instance, by assigning them to substantial tasks or programs requiring long-term commitment), because they fear giving volunteers too much responsibility (Hunter, 2004). It is believed that understanding the factors that motivate volunteers' long-term commitment and their socio-demographic diversity

might minimize this attrition cost and maximize the benefits dedicated volunteers provide.

V.4.1 Recommendations Based on Volunteers' Motivation

The first practical insight from this study's findings concerns the identification of volunteers' motivation and their connection to a satisfied and committed volunteer force. Determining what initially motivates individuals to become volunteers is very important because program managers can use this information to develop more efficient recruitment strategies (Bruyere & Rappe, 2007; Jacobsen *et al.*, 2012). As a group, the TPWD volunteers were most driven by a desire to make a contribution to the environment, gain knowledge about the natural environment, and express their personal values. This result suggests that it would be helpful for managers to utilize the enhancement of the natural environment, as well as the opportunity to learn new skills and express one's personal values, as the primary focal points in recruitment. To attract more intrinsically motivated volunteers, the TPWD volunteer program may need to revamp its internet and social media presence. To its credit, on its webpage the program provides explicitly detailed steps regarding how to apply, lists of volunteer opportunities, and the duties and requirements of each project. Thus, prospective volunteers can easily inform themselves and answer their own questions. However, the program's website does not explain the potential benefits that participants can expect to gain from volunteering. For example, for volunteers strongly compelled to improve the environment, the recruitment webpage should include information on the environmental significance of TPWD's projects. Learning was also found to be an important motivator

for TPWD volunteers. The program's webpage could highlight opportunities to learn about the natural environment through orientation and training programs. Similarly, ensuring that the program's webpage emphasizes information about volunteers' participation would provide an excellent avenue for volunteers seeking to express their personal values.

V.4.2 Recommendations Based on the Relationships among Volunteers' Motivation, Satisfaction, and Commitment

A significant number of those who apply to be volunteers do so because of the ease of engagement and little sense of obligations they feel; consequently, many drop out after some time (Baramante, 2004). The strong motivation to engage in volunteering supports the notion that volunteers seek a mutually beneficial relationship with their host organization, which can only be achieved when volunteers' motivations match the organization's needs (Hunter, 2004). This reciprocal relationship can lead to positive outcomes, such as committed and effective volunteers (Butcher, 2003). The results of this research showed that the benefits volunteers obtained from volunteering significantly contributed to their satisfaction with the experience; this, then, positively impacted their commitment to their host organization. These positive connections suggest that volunteer coordinators should implement better retention strategies that are tailored to matching projects to volunteers with appropriate motives and skills.

For TPWD volunteers, program managers should conduct an interest and experience inventory to identify individuals' motivations, skills, experience, and availability. These types of questions could easily be integrated into the online

application process, or asked in an orientation. TPWD currently collects information regarding potential volunteers' areas of interest (projects in which they may have a desire to participate), ethnic background, and languages spoken, which is very useful for reaching certain conclusions about potential members. However, the collection of other, more valuable information should be considered. For instance, if a volunteer is driven by a desire to help the environment and has generative concerns, TPWD could assign them to program that is aligned with their motivation. An example might be the Texas Master Naturalist program, which provides education and service dedicated to the beneficial management of the state's natural resources (Texas Parks & Wildlife, n.d.b). Park Host opportunities that ask volunteers to address restroom maintenance, litter pickup, and general customer service (Texas Parks & Wildlife, n.d.e) may be more suitable for volunteers who do not have specific skills and only seek volunteer experience. Making such changes would help organizations like TPWD increase volunteer satisfaction and alleviate turnover as early as the recruitment stage, instead of wrestling with such problems after volunteers are placed.

V.4.3 Recommendations Based on Volunteers' Satisfaction

Identifying volunteers' satisfaction can also provide retention guidance. It was found that compared to other aspects of the volunteer experience (e.g., work assignments, participation efficacy, and group integration), TPWD volunteers were least satisfied with their relationships with paid staff and the communication, recognition, and support provided by TPWD. Thus, program coordinators should improve their communication methods and provide more recognition and assistance to volunteers.

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TPWD currently communicates with potential and current volunteers via social media outlets (e.g., Facebook). This social media tool allows volunteers to obtain information on upcoming opportunities, share experiences, and ask questions. However, the results of this study indicate that respondents did not use social media as their primary source of information about the program. Program managers should regularly monitor how Facebook is being used and the nature of the content presented.

As technology continues to advance, more efficient means of providing information should be considered. For example, the program may want to design its own mobile app, which would allow users to obtain information and conveniently interact with other volunteers and staff. Besides a social media presence, volunteer coordinators could gather volunteers together to communicate about their activities and share their values in regular meetings.

Moreover, program managers should also provide rewards and personal recognition as often as possible (Hunter, 2004). Even a simple verbal "thank you" for their service would make volunteers feel appreciated. Recognizing volunteers' knowledge and skill through opportunities whereby senior volunteers could train newcomers would provide another way of expressing thanks (Jacobsen *et al.*, 2012). Such opportunities for members to form ties within their organization would not only improve volunteer satisfaction, but also promote social interaction and a sense of belonging.

V.4.4 Recommendations Based on Volunteers' Generativity

Perhaps even more importantly, this study provides insights into the manner by which individuals derive meaning and fulfillment from their environmental volunteering,

through the lens of Erikson's theory of generativity. The results indicate that the TPWD volunteers linked their environmental actions to making contributions to future generations, passing on skills and knowledge, personal growth, and leaving a legacy. Moreover, these features of generativity were strongly associated with goals served by volunteering, the volunteer experience, and organizational commitment.

Understanding the connection between generativity and environmental volunteering has practical implications for natural resource management agencies seeking to facilitate and sustain the work volunteers do. First, program managers should design more intergenerational activities that bring older adults together with teenagers and younger children. TPWD has a few such programs, such as their Outreach and Communications Program in which volunteers teach youth how to fish, and the Coastal Fisheries Program where volunteers help children learn about Texas's coastal ecosystems. Given that TPWD volunteers generally exhibited high level of generativity, new program models that integrate intergenerational activities into a wider variety of volunteer activities would help TPWD more successfully recruit and retain environmental volunteers. For instance, coordinators could bring park hosts and groups of school-age children together to assist park staff with environmental restoration projects. Such opportunities would satisfy adult volunteers' desire to mentor and teach young people, and promote intergenerational relations (Warburton & Gooch, 2007).

In addition, TPWD program coordinators could organize cooperative efforts with communities through churches and neighborhood associations. Peterson, Smirles, and Wentworth (1997) found that community involvement is likely to promote individuals'

sense of generativity. Moreover, giving something back to the neighborhood in which they live was a desire expressed by many TPWD volunteers. Program managers could more effectively secure volunteers' organizational commitment to TPWD by stimulating volunteers' generativity through environmental community involvement actions.

V.4.5 Recommendations Based on Volunteers' Socio-demographics

TPWD volunteer program managers need to better understand their current volunteers' socio-demographic diversity in order to make their involvement more fulfilling. The descriptive analyses showed that the number of older persons with time available to devote to the TPWD volunteer program was substantial. However, despite the significant number of seniors, or as Wells and Pillemer (2015, p. 159) called them, "the gray-and-green connection," the program does not have any specific senior-specific accommodations. In other words, TPWD did not make a special effort to investigate retention strategies for Baby Boomer volunteers. Baby Boomers' have begun reaching retirement age in recent years, and this has boosted the size of the volunteer pool. The result is increased access to possible volunteers with experience and available time (Pillemer & Wagenet, 2008; Pillemer *et al.*, 2009). However, these volunteers have proven difficult to retain (Cox, 2007). Therefore, it is urgent for natural resource management agencies like TPWD to enhance their effort to design programs catering to this group. For example, as Cox (2007) emphasized, Baby Boomer volunteers may face physical challenges as they age. Therefore, an unrushed pace would be a key component of such a program. Managers should regularly check with older volunteers to see if they

need a reduction in responsibilities or more time to finish the assigned tasks to avoid burnout.

In addition, the socio-demographic diversity of the U.S. continues to change rapidly (Trauntvein, 2011); however, this study showed that the TPWD volunteer program has not adapted. It should be noted that the majority of the sample data were retired, white, college graduates who had annual incomes higher than $60,000. In the future, TPWD should create a supportive environment to attract underrepresented volunteers (e.g., people of color, with less education, and lower incomes) who might not otherwise get involved. To respond to this problem, program managers should investigate the surrounding communities to enhance their understanding of barriers experienced by non-volunteers. Cleave and Doherty (2005) uncovered potential obstacles to volunteer involvement. For instance, some respondents reported the conflicts with work and/or family, and problems with scheduling. Therefore, more flexible schedules and shorter mandatory commitments should be provided to reduce time constraints. Addressing the limitations faced by many non-volunteers could make possible a more socio-demographically diverse group of helpers.

V.4.6 Recommendations Based on Differences within Socio-demographic Groups

Finally, this study has shown that TPWD volunteers experience volunteering differently based on their age, gender, education level, and employment status. This finding will help program managers design different strategies for recruiting and retaining demographically diverse volunteers.

For instance, even though career motivation was not a dominant incentive for TPWD volunteers, it was significantly more important for younger volunteers than for those of other age groups. These young volunteers were most likely students seeking internships or other career opportunities in the future. TPWD should consider creating more special projects for young adults. So far, TPWD offers only the Texas State Parks Ambassadors program to attract younger volunteers and allow them to engage with their peers. Currently, the TPWD volunteer program is partnering with high schools and universities on service learning projects to recruit for internships and future careers. Designing independent study projects that combine schoolwork and volunteering should be considered as a way of satisfying young volunteers.

In this research, female volunteers had significantly higher average scores than their male counterparts for a number of motivations, and they were more satisfied with their volunteering experience. They may also prefer certain types of volunteering activities over others. TPWD volunteers should assign activities accordingly. Moreover, programs should promote positive social situations for female volunteers and childcare for mothers, to enable women with children to volunteer (Trauntvein, 2011).

In general, volunteers with college degrees and above were less likely to be motivated, satisfied, and committed than volunteers with less education. Program managers can increase their motivation, satisfaction, and commitment by ensuring that their talents are effectively utilized. For example, some may be concerned about policy issues and want to get more involved in the policy decision-making process. Program managers could assign these volunteers to administrative roles and consider their

feedback/ideas on improving the program when making policy, thus empowering these volunteers to implement environmental programs.

Finally, considering their employment status, unemployed volunteers may find recruitment messages more persuasive if they identify how volunteering might translate to potential career opportunities. TPWD volunteer program managers should seek out special projects that might be of interest to community groups or corporations. By doing so, unemployed volunteers could expand their community roles and increase their connections to possible job providers.

According to a TPWD volunteer program manager, this study marks the first time that TPWD adopted a scientific system of evaluation for their program. This researcher strongly encourages TPWD to conduct annual program evaluations. When program managers adopt scientific systems of evaluation and plan their programs accordingly, environment-related volunteering activities reinforce the reciprocal relationship between volunteers and the natural world (Ryan *et al.*, 2001).

V.5 Recommendations for Future Research

The findings and limitations of this research provide the foundation for several suggestions for future work. First, this study was conducted with volunteers for a single natural resource management agency (TPWD) over a limited period of time. A more diverse sample from other types of federal agencies (e.g., the National Park Service) and an extended data collection effort would allow for better generalizability of the results to different contexts. In doing so, our understanding of the issues will be greatly improved.

Another suggestion for future research would be adopting a more diverse data collection method. One limitation of the current study was the use of an online survey to examine the variables. Wright *et al.* (2015) argued that it was possible that more satisfied volunteers would be more likely to answer online surveys. Future research is encouraged to incorporate other data collection methods. For instance, face-to-face interviews with volunteers and volunteer program managers should be considered. Interviews would provide researchers with the opportunity to more clearly understand volunteers' perceptions and attitudes regarding their participation in volunteer programs.

The major variables investigated in this study include volunteers' motivation, satisfaction, commitment, generativity, and selected demographics. The current study is a first attempt at conducting empirical tests and developing a measurement that integrates the variable of generativity into the model of volunteer commitment, within the context of environmental volunteerism. Although the viability and reliability of this model is supported by this research, future work should investigate if the model and scales used here remain reliable and valid when applied to an individual who volunteer in other types of settings (e.g., social service volunteers). Applying this model in a different context would encourage the transferability of key factors.

Also, in future research, the measurements of the variables used in this study should be enhanced. For instance, one item for *Affective commitment* had a low factor loading and was dropped from the analysis. Future research should refine the current scale items to better represent volunteers' commitment. In addition, in contrast with previous research, this study found no statistically significant differences between gender groups

in terms of *Generativity*, *Affective commitment*, or *Normative commitment*. Future work

should examine these relationships and assess whether other types of volunteers would

produce the same results by using refined measurements.

This study was designed to assess the relationships among volunteers' motivation,

satisfaction, commitment, generativity, and selected socio-demographic characteristics.

Due to the questionnaire's length, this research did not consider or include other

variables and relationships. For instance, this work measured the predictive values of

various factors (e.g., motivation, satisfaction, and generativity) for volunteers'

commitment, but only in terms of their psychological aspects. The relationships among

these factors and volunteer commitment behaviors (e.g., hours invested weekly in

volunteering and length of time serving the particular organization) were not assessed.

Also, future research efforts should address variables reflecting volunteers' demographic

differences beyond those of age, gender, education level, and employment status. This

would incorporate recommendations made by Han (2007), who suggested studying the

influence of marital status on volunteers' experience. Such work would provide useful

insights to program managers seeking to better manage their volunteer forces.

It is also recommended that in future research, inactive volunteers should be invited

to participate. This will help managers better understand what factors keep prospective

volunteers from engaging with environmental causes and provide more comprehensive

knowledge regarding how best to manage and sustain volunteers' involvement. Finally,

although assessing the links among the specific factors of motivation, satisfaction,

commitment, and overall generative concern was beyond the scope of the current study,

it would be very interesting to test these links in future research on environmental

volunteerism.

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APPENDIX A. SURVEY CORRESPONDENCE

ID#:
Dear First Name,

The Texas Parks and Wildlife Department (TPWD) relies on volunteers to manage and conserve the state's natural and cultural resources, as well as to provide recreation programs, attractive and safe parks. It is critically important for TPWD's Volunteer Program managers to understand your experiences in order to meet your needs as volunteers.

To gather your opinions, we are conducting a survey of individuals who currently registered volunteers with TPWD. This survey is being conducted by researchers from Texas A&M University, in cooperation with TPWD's Volunteer Program. The information gathered will provide data to support their ongoing effort to design, implement, and maintain volunteer programs and better serve their participants.

You may be assured of complete confidentiality. The questionnaire has an identification number for emailing purposes only. The number allows us to check your name off the database when your questionnaire is submitted, ensuring we do not send you additional invitations. Your name will never be linked to your responses.

Your responses to the survey will help to inform us as to where you stand on these important issues. YOU are one of a small number of our members that were chosen to participate in this study. Your response to this survey is completely voluntary. You are in no way obligated to participate if you do not feel comfortable doing so. However, we would appreciate you taking the few minutes necessary to complete the questionnaire. Your answers will remain anonymous and completely confidential. Only aggregated results will be reported. Once the study is complete, all names and addresses will be destroyed. We WILL NOT sell or distribute your name and address to any other party. The questionnaire should take approximately 20 minutes to complete.

To access the questionnaire online, please click here

Alternately, you may type the following address in your browser

When you arrive at the survey website, please enter your ID located at the top of this email into the ID box.
For questions or clarification about the survey, please call 979-219-1882.
Thank you in advance for your help.

Sincerely,

ID#:
Dear First Name,

Several days ago we sent you an email requesting your participation in a survey concerning TPWD volunteer program. As of today we have not yet received your completed questionnaire.

To gather your opinions, we are conducting a survey of individuals who currently registered volunteers with TPWD. This survey is being conducted by researchers from Texas A&M University, in cooperation with TPWD's Volunteer Program. The information gathered will provide data to support their ongoing effort to design, implement, and maintain volunteer programs and better serve their participants.

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Thank you in advance for your help.

Sincerely,

ID#:
Dear First Name,

Over the last week we've sent you emails requesting your participation in a survey concerning TPWD volunteer program. As of today we have not yet received your completed questionnaire. We apologize for filling your inbox – but we need your help.

To gather your opinions, we are conducting a survey of individuals who currently registered volunteers with TPWD. This survey is being conducted by researchers from Texas A&M University, in cooperation with TPWD's Volunteer Program. The information gathered will provide data to support their ongoing effort to design, implement, and maintain volunteer programs and better serve their participants.

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For questions or clarification about the survey, please call 979-219-1882.

Thank you in advance for your help.

Sincerely,

ID#:
Dear First Name,

Over the last week we've sent you emails requesting your participation in a survey concerning TPWD volunteer program. As of today we have not yet received your completed questionnaire. This will be the last of our correspondence so we hope that you take a moment of your valuable time to complete the questionnaire. We apologize if our notes have unnecessarily clogged your inbox but we do sincerely need your input.

To gather your opinions, we are conducting a survey of individuals who currently registered volunteers with TPWD. This survey is being conducted by researchers from Texas A&M University, in cooperation with TPWD's Volunteer Program. The information gathered will provide data to support their ongoing effort to design, implement, and maintain volunteer programs and better serve their participants.

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When you arrive at the survey website, please enter your ID located at the top of this email into the ID box.

For questions or clarification about the survey, please call 979-219-1882.

Thank you in advance for your help.

Sincerely,

VOLUNTEER SURVEY

Volunteer for Texas Parks and Wildlife

SPONSOR
TEXAS PARKS & WILDLIFE

ADMINISTERED BY
TEXAS A&M UNIVERSITY
COLLEGE STATION, TX 77843-2261

Please tell us about your experience volunteering for Texas Parks and Wildlife.

1. How did you first hear about volunteering for Texas Parks and Wildlife?
   a. Texas Parks and Wildlife Department website
   b. Email
   c. State park friends' group
   d. Religious group, youth group, community service group or other nonprofit
   e. College / university
   f. Traditional media (e.g., television, radio, newspaper, or magazine)
   g. Social media (e.g., Instagram, Facebook, or Twitter)
   h. Friends or family
   i. Other (please specify) _____

2. How many months have you been a volunteer for Texas Parks and Wildlife?
   Months: _____

3. How many hours did you volunteer for Texas Parks and Wildlife in 2015?
   Hours: _____

4. In What area did you volunteer the most for Texas Parks and Wildlife?
   a. Park host
   b. State park friends' group or other state park support organization
   c. State park visitor education (e.g., interpretation, docent, and tour guide)
   d. Special event
   e. Environmental restoration and maintenance (e.g., trail work and clean-up)
   f. Outreach and education (e.g., hunter, angler, and archery education)
   g. Office administration
   h. Citizen science (e.g., nature trackers and I-naturalist)
   i. Texas Master Naturalist
   j. Other (please specify) _____

5. Please circle the number that indicates how important each item is to you as a volunteer

		NOT AT ALL IMPORTANT	SLIGHTLY IMPORTANT	MODERATELY IMPORTANT	VERY IMPORTANT	EXTREMELY IMPORTANT
a)	I volunteer because I am concerned about the environment	1	2	3	4	5
b)	Volunteering for TPWD provides me with the opportunity to work with good leaders	1	2	3	4	5
c)	By volunteering I feel better about myself	1	2	3	4	5
d)	Volunteering lets me learn things through direct, hands-on experience	1	2	3	4	5
e)	Volunteering may help me to get a foot in the door at a place where I would like to work	1	2	3	4	5
f)	My friends volunteer	1	2	3	4	5
g)	I enjoy volunteering because it helps me to provide a quality visitor experience	1	2	3	4	5
h)	Volunteering allows me to protect natural areas from disappearing	1	2	3	4	5
i)	I enjoy volunteering for TPWD because I know what is expected of me	1	2	3	4	5
j)	I volunteer because I can express my values through my work	1	2	3	4	5
k)	Volunteering provides an opportunity for learning about specific plants/animals	1	2	3	4	5
l)	Volunteering allows me to make contacts that might help my career	1	2	3	4	5
m)	Volunteering provides me with the opportunity to meet new people	1	2	3	4	5
n)	I volunteer because I can help preserve natural areas for future generations	1	2	3	4	5
o)	I enjoy volunteering for TPWD because I can be part of a well-organized project	1	2	3	4	5
p)	Volunteering makes me feel needed	1	2	3	4	5
q)	I volunteer because it allows me to learn about the environment	1	2	3	4	5
r)	Volunteering helps me to explore possible career options	1	2	3	4	5
s)	Volunteering allows me to be with people like myself	1	2	3	4	5
t)	I volunteer because I want to see improvements to the environment	1	2	3	4	5
u)	I volunteer because TPWD volunteer programs are well-organized	1	2	3	4	5
v)	Volunteering allows me to live in a way that represents my values	1	2	3	4	5
w)	Volunteering allows me to observe nature	1	2	3	4	5
x)	Volunteering will help me to succeed in a chosen profession	1	2	3	4	5
y)	People I'm close to want me to volunteer	1	2	3	4	5

6. Thinking about the volunteer program you selected in question #2, please circle the number that corresponds with your level of satisfaction.

	VERY DISSATISFIED	DISSATISFIED	NEUTRAL	SATISFIED	VERY SATISFIED
a) My relationship with paid staff	1	2	3	4	5
b) The way in which the agency provides me with performance feedback	1	2	3	4	5
c) The amount of communication coming to me from paid staff and/or board members	1	2	3	4	5
d) The support I receive	1	2	3	4	5
e) The amount of information I receive about what the organization is doing	1	2	3	4	5
f) How often the organization acknowledges the work I do	1	2	3	4	5
g) The amount of permission I need before I can do the things I do on this job	1	2	3	4	5
h) Projects are well organized	1	2	3	4	5
i) The difference my volunteer work is making	1	2	3	4	5
j) The opportunities I have to learn new things	1	2	3	4	5
k) The fit of the volunteer work to my skills or interests	1	2	3	4	5
l) How worthwhile my contribution is	1	2	3	4	5
m) The access I have to information concerning the organization	1	2	3	4	5
n) The freedom I have in deciding where and how to volunteer	1	2	3	4	5
o) The chance I have to utilize my knowledge and skills	1	2	3	4	5
p) My relationship with other volunteers	1	2	3	4	5
q) The friendships I have made	1	2	3	4	5
r) The amount of interaction I have with other volunteers	1	2	3	4	5
s) The amount of time I spend with other volunteers	1	2	3	4	5

7. Please circle the number that corresponds with your level of agreement with each of the statements.

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
a) I would be very happy to spend many years with TPWD volunteer program if it were allowed	1	2	3	4	5
b) I enjoy discussing my TPWD volunteer program with people outside it	1	2	3	4	5
c) I really feel as if TPWD volunteer program's problems are my own	1	2	3	4	5
d) I think that I could easily become as attached to another organization as I am to TPWD	1	2	3	4	5
e) I do not feel like "part of the family" at TPWD volunteer program	1	2	3	4	5
f) I do not feel "emotionally attached" to TPWD volunteer program	1	2	3	4	5
g) TPWD volunteer program has a great deal of personal meaning for me	1	2	3	4	5
h) I do not feel a strong sense of belonging to TPWD volunteer program	1	2	3	4	5
i) It would be wrong to leave TPWD volunteer program right now because of my obligation to the fellow volunteers in it	1	2	3	4	5
j) TPWD volunteer program deserves my loyalty	1	2	3	4	5
k) I would feel guilty if I left TPWD volunteer program now	1	2	3	4	5
l) I owe a great deal to TPWD volunteer program	1	2	3	4	5
m) I do not feel any obligation to remain with TPWD volunteer program	1	2	3	4	5
n) Even if it were to my advantage, I do not feel like it would be right to leave TPWD volunteer program now	1	2	3	4	5

8. For each of the following statements, please circle the number that indicates how the statement applies to you.

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
a) I try to pass along the knowledge I have gained through my experiences	1	2	3	4	5
b) I do not feel that other people need me	1	2	3	4	5
c) I think I would like the work of a teacher	1	2	3	4	5
d) I feel as though I have made a difference to many people	1	2	3	4	5
e) I have made and created things that have had an impact on other people	1	2	3	4	5
f) I try to be creative in most things that I do	1	2	3	4	5
g) I believe that society cannot be responsible for providing food and shelter for all homeless people	1	2	3	4	5
h) Others would say that I have made unique contributions to society	1	2	3	4	5
i) Volunteering is the morally right thing to do	1	2	3	4	5
j) I have important skills that I try to teach others	1	2	3	4	5
k) In general, my actions do not have a positive effect on other people	1	2	3	4	5
l) I feel as though I have done nothing of worth to contribute to others	1	2	3	4	5
m) I have made many commitments to many different kinds of people, groups, and activities in my life	1	2	3	4	5
n) Other people say that I am a very productive person	1	2	3	4	5
o) I have a responsibility to improve the neighborhood in which I live	1	2	3	4	5
p) People come to me for advice	1	2	3	4	5

We would like to know some personal information about you so that we may further distinguish <u>volunteers</u> and <u>non-volunteers</u>. Your responses will be confidential and you will not be identified with your answers.

9. Are you? _____ Male   _____ Female

10. In what year were you born? _____

11. Which of the following best describes the highest level of education you have completed?
    a. Some high school or less
    b. High school graduate
    c. Some college/Technical school
    d. University graduate
    e. Post-graduate degree

12. What is your current employment status?
    a. Employed full time
    b. Employed part time (less than 32 hours per week)
    c. Unemployed and looking for work
    d. Unemployed but not looking for work
    e. Retired
    f. Other (please specify) _____

13. What is your approximate annual household income before taxes?
    a. Under $20,000
    b. $20,000 - $39,999
    c. $40,000 - $59,999
    d. $60,000 - $79,999
    e. $80,000 - $99,999
    f. $100,000 - $119,999
    g. $120,000 - $139,999
    h. $140,000 - $159,999
    i. $160,000 and above

14. Do you consider yourself:
    a. African-American or Black
    b. Asian
    c. Caucasian or White
    d. Latino/Hispanic
    e. Native American/American Indian
    f. Pacific Islander
    g. Multi-racial or Mixed race

     h. Other (please specify)

15. Veteran Status
     a. Veteran
     b. Dependent of a veteran who was killed on active duty
     c. Spouse – a veteran's surviving spouse
     d. Not applicable

16. Is there anything else you would like to share with us?
_____

Thank you for completing this survey!