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Volunteers' Stewardship Action-Taking Experiences During the COVID-19 Pandemic Predicted by Their Motivation Toward Engagement and Ability to Teach Others

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The current study investigates the relationship between volunteer stewardship action-taking, motivation toward engagement in volunteer activities, and the ability to teach others during the COVID-19 pandemic. The final data set included 1,196 responses from the Penn State Extension Master Gardeners and Master Watershed volunteers, which provided a response rate of 39.9%. The results of this study showed that approximately 15.1% of the variation in volunteer stewardship action-taking experiences could be explained by volunteers' motivation toward engagement in volunteer activities and their ability to teach others. Most findings are in line with previous research. Extension and outreach educators and volunteer coordinators can better prepare their Master Gardeners and Master Watershed volunteers for effective responses to their community needs, especially in times of uncertainty. More research is needed in volunteer stewardship action-taking experiences during times of uncertainty and change.

Keywords: volunteer stewardship action-taking experiences, ability to teach others, motivation toward engagement in volunteer activities, Master Gardeners, Master Watershed volunteers

Introduction

Volunteerism, defined as "the act or practice of doing volunteer work in community service" (Merriam-Webster, n.d.-b), has played a significantly prominent role in American culture and civic life since the 1800s (Ott, 2018; Turnbull, 2022). The university-community partnership has been found helpful in addressing various community needs through volunteer programs (Osafo, 2021; Osafo & Yawson, 2019). During the COVID-19 pandemic, individuals took volunteer actions in varied areas, including but not limited to health care (Buckland, 2020; Pickell et al., 2020), public well-being (Kwan et al., 2021), education (Iyengar, 2021), university Cooperative Extension and food supply (Osafo, 2021). Windon and Buchko (2022) described volunteers who could engage in leadership roles as educators, team, and project managers during the pandemic as action-takers and stewards.

Hernandez (2008) defined stewardship as leadership behaviors that "promote a sense of personal responsibility in followers for the long-term well-being of the organization and society" (p. 121). Windon and Buchko (2022) defined stewardship actions as "the actions taken by volunteers who possess expertise in the subject matter, act for the greater good in their communities, actively engage in social actions in leadership roles and make a long-lasting impact" (p. 115). The literature reveals the positive relationships between volunteers' motivation, satisfaction, and longevity of volunteer engagement in stewardship actions (Bruyere & Rappe, 2007; Jacobson et al., 2012; Stukas et al., 2016 a; Stukas et al., 2016 b). Among some factors that impact the willingness of volunteers to join the volunteer program or organization and be active action-takers are satisfaction with volunteer experiences (Liarakou et al., 2011; Reinklou & Rosén, 2013), the meaningfulness of volunteer work (Faletehan et al., 2021), feelings of belonging and relatedness (Boezeman & Ellemers, 2009; Reinklou & Rosén, 2013), demographic characteristics (Dorn et al., 2018; Merenlender et al., 2016), learning opportunities (Liarakou et al., 2011), and motivation (Ryan & Deci, 2000a). Shock can be a motivating factor that initiates volunteer actions and creates empathy (Neely et al., 2022).

Recent studies recommend exploring the relationship between volunteer motivation, engagement, and action-taking experiences (Windon & Buchko, 2022). Ryan et al. (2001) suggested considering changes in volunteers' motivations at different stages of their volunteer engagement to impact and nurture their action-taking capacity. Failure to fulfill volunteers' motives in managing Extension programs could result in high exit rates from the programs, poor recruitment, low engagement, and action-taking capacity (Faletehan et al., 2021; Reinklou & Rosén, 2013). The attraction and retention of volunteers have become even more challenging considering post-pandemic realities (Brennan et al., 2022). The literature shows a lack of research exploring volunteers' stewardship action-taking experiences caused by the COVID-19 pandemic (Osafo, 2021; San Llorente Capdevila et al., 2020; Windon & Buchko, 2022). The purpose of this study was to assess the relationship between volunteer stewardship action-taking experiences (VSATE) of Penn State Extension Master Gardeners (MG) and Watershed Stewards (WS), their motivation toward engagement in volunteer activities (MTEVA), and their ability to teach others (ATO) during the COVID-19 pandemic.

Literature Review

The question "Why do individuals become involved in volunteer programs, and how do make them stay, including in times of emergencies?" never loses its actuality. Research investigating volunteers' motivation is essential to (1) understand volunteers' motivation, (2) ensure their satisfaction, (3) positively impact their recruitment and retention, (4) ensure the efficiency and effectiveness of extension programs' operation, as well as their design, implementation, and maintenance, and (5) provide opportunities for volunteers to get the most optimal outcomes for themselves (Measham & Barnett, 2008; Strong & Harder, 2011; Wright et al., 2015). The researchers working with volunteers, including Master Gardeners (MG) and Watershed Stewards

(WS), suggested that considering the dynamic nature of the action-taking capacity of volunteers and the role of motivation towards volunteers' engagement, it is important to monitor the motivational needs of volunteers that can help to sustain an efficient operation of Extension programs (Liarakou et al., 2011; Ryan et al., 2001; Strong & Harder, 2011).

Pinder (1998) defined *motivation* as "a set of energetic forces that originates both within as well as beyond an individual's being, to initiate work-related behavior, and to determine its form, direction, intensity and duration" (p. 11). The author wrote that motivation determines, predicts, and sustains behaviors and actions toward outcomes. Volunteer work motivation can be *intrinsic*, involving needs that are inherently met by doing the work, or *extrinsic*, involving a drive for results or rewards external to the activity (Davis et al., 1992; Deci et al., 2001; Dysvik & Kuvaas, 2013; Frey, 1997; Tremblay et al., 2009).

Intrinsic Motivation and Volunteer Engagement

Intrinsic motivation can be described from the eudaimonic and hedonic perspectives. From the eudaimonic perspective, *intrinsic motivation* is defined as an "inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn" (Ryan & Deci, 2000a; Ryan & Deci, 2000b, p. 70). Ryan and Deci (2000a) defined *intrinsic motivation* from the hedonic perspective as "the doing of an activity for its inherent satisfaction rather than for some separable consequence. When intrinsically motivated, a person is moved to act for the fun or challenge rather than because of external products, pressures, or rewards" (Ryan & Deci, 2000a, p. 56). This definition of intrinsic motivation echoes the positive psychology theory grounded in Aristotelian principles of virtue theory and his belief that human beings experience good feelings when exercising their innate strengths and virtues or trained abilities. His theory also states that their enjoyment increases when they can realize their capacities through overcoming complexities and challenges, which brings feelings of fulfillment and realization, attachment to the setting or its activities, better health, optimal functioning, and optimal well-being (Csikszentmihalyi, 1991; Fredrickson et al., 2008; Seligman, 2005, 2011a, 2011b). A negative relationship was found between intrinsic motivation and the intention to quit work in the non-profit sector (Renard & Snelgar, 2018).

Some recent studies have shown a positive relationship between intrinsic motivation and work engagement, including non-profit (Renard & Snelgar, 2018) and hospitality sectors (Putra et al., 2017). *Engaged and motivated volunteers* are highly motivated because they do not necessarily volunteer to produce something or be rewarded in any way. They are motivated because they enjoy the tasks that make them happy or satisfied. These feelings of enjoyment, happiness, satisfaction, and meaningfulness are what psychologists call intrinsic or internal rewards. Research shows that meaningful activities, tasks, and/or actions are positively connected to volunteer motivation, commitment, and engagement (Allan, 2019), and attraction and retention of volunteers (Krasny et al., 2014; Ryan et al., 2001). Meaningful work leads to higher intrinsic

motivation, which is positively associated with higher work engagement (Putra et al., 2017; Van Beek et al., 2012). According to work engagement and self-determination theories, engaged and motivated individuals or volunteers are more creative, enthusiastic, persistent, committed, productive, and willing to go the extra mile (Bakker & Demerouti, 2008; Ryan & Deci, 2000b). *Disengaged volunteers* do not invest or rarely invest their time and energy into volunteering; they can complete the training program but usually do not get certificates or engage in volunteer activities. Ryan et al. (2001) distinguished between active (engaged) and inactive (disengaged) volunteers. Engaged or active volunteers are highly committed, have strong friendships within the group, feel a stronger emotional connection to the community, participate in other volunteer groups, and use the volunteer sites for recreation compared to non-active volunteers.

In our study, *engaged volunteers* are also described as those who completed a training program, earned certificates, and volunteered after program completion. To become certified, the participants of the Master Gardener and Watershed Steward programs are expected to attend classes for typically 30-70 hours over a few months or a year and fulfill the required number of hours as volunteer educators (Conway et al., 2003; Langellotto et al., 2015). To maintain certification for participation in the program in subsequent years, MG and WS are expected to continue volunteering a certain number of hours each year and participating in continuing education programs yearly. Additional local requirements may vary. In their collaborative efforts, dedicated MG and WS can donate from 30,000 to 970,000 hours of service per year (Penn State Extension, 2023; University of Connecticut, 2023; Virginia Tech, 2023b); 50,000 hours of service can be valued at $1.6 million (Virginia Tech, 2023a). Dorn et al. (2018) reported that Extension Master Gardener volunteers had “outserved” their local and state coordinators by providing more years of service. Strong and Harder (2011) said that in 2010, Master Gardener volunteers taught horticultural subject matter to over 71,000 adults in Florida (p. 65).

Engaging in voluntary actions that target the improvement of the lives of others is a form of “collectivism,” which is associated with community involvement (Batson et al., 2002, pp. 437–438). Schrock et al. (2000) found that one motive for becoming MG is the possibility of meeting people. McDougle et al. (2011) found that the opportunity to socialize and meet new people predicted the intensity of volunteer stewardship actions toward social aspects. Stukas et al. (2016a) suggested that other-oriented motivation is positively connected with individual well-being, satisfaction, and intentions to continue volunteering. Jacobson et al. (2012) found that no matter what motivates MG to volunteer and how strong their commitment to the organization is, dissatisfaction with their experiences could lead to their desire to leave the organization. The positive connection between the volunteers’ intention to leave and satisfaction was also found by other researchers (Salas, 2008). From the eudaimonic perspective, inherent satisfaction comes from being engaged in actions that have an internal reward and are aligned with underlying ethics, morals, beliefs, and values (Bennett et al., 2018; Ryan & Deci, 2000a). As the literature showed, individuals who volunteered during the pandemic exhibited greater social responsibility

and a higher desire to contribute to society and communities (Chow et al., 2021; Sengupta & Al-Khalifa, 2022).

External Motivation, Self-Centered, and Other-Centered Reasons to Volunteer

Extrinsic motivation is defined as "an external incentive to engage in a specific activity, especially motivation arising from the expectation of punishment or reward (e.g., completing a disliked chore in exchange for payment)" (American Psychological Association, n.d.). According to Ryan and Deci (2000), *extrinsic motivation* is "a construct that pertains whenever an activity is done to attain some separable outcome. Extrinsic motivation thus contrasts with intrinsic motivation, which refers to doing an activity simply to enjoy the activity itself, rather than its instrumental value" (p. 60). Extrinsic motivation is based on egoistic values. Extrinsically motivated individuals are engaged in voluntary work activities to attain some separable outcome, such as earning a reward, gaining approval, or avoiding punishment (Ryan & Deci, 2000a, pp. 56–60). Examples of external rewards include career-related knowledge and experiences, the development of networks, and others. In other words, an extrinsically motivated volunteer is focused on the outcomes of the activity (e.g., the usefulness of the activity). Jacobson et al. (2012) found that extrinsic recognition and rewards are necessary for retaining volunteers. Deci and Ryan (2000a) and other researchers (Gebauer et al., 2008; Konrath et al., 2012; Stukas et al., 2016b) reported that compared to intrinsically motivated activities, self-oriented motivations (extrinsically motivated activities) were typically associated with reduced volunteer persistence as well as lower psychological and physical well-being. At the same time, Green et al. (1984) found that volunteer satisfaction and retention were positively associated with *non-altruistic reasons* (e.g., useful experience for the future), perhaps because the benefits of volunteering were instrumental and easily recognized. Volunteers motivated by *altruistic reasons* (e.g., helping others and a sense of duty) could experience less satisfaction and have less desire to continue volunteering, possibly because the benefits of volunteer services were less tangible and apparent. The researchers recommended volunteer-based organizations and programs to emphasize both altruistic and non-altruistic benefits of volunteer engagement; this way, they have more chances to recruit and retain volunteers. At the same time, research conducted during times of emergencies and crisis, including the COVID-19 pandemic, showed that volunteer engagement and retention were mainly based on the altruistic values of volunteers (Chow et al., 2021).

Cambridge Dictionary defines *values* as "the principles that help you to decide what is right and wrong, and how to act in various situations" (Cambridge University Press, n.d., para 1). Merriam-Webster Dictionary defines *values* as "something (such as a principle or quality) intrinsically valuable or desirable" (n.d.-a, para 4). *Values* "encompass the full range of a person's goals - social (e.g., esteem), material (e.g., a comfortable life), psychological (e.g., competence), and moral (e.g., compassion)" (Schwartz & Howard, 1984, p. 230). To be regarded as a volunteer, an individual is typically motivated by altruistic or prosocial values as opposed to

monetary gain (e.g., community service) and enjoys the intrinsic rewards that come from the act of volunteering (Bussel & Forbes, 2001; Renard & Snelgar, 2018). The study of (Schrock et al., 2000) found that the main benefits of MG derived from their participation in MG programs related to the enhanced knowledge, personal growth, and satisfaction of their altruistic values. The studies conducted during the COVID-19 pandemic showed that intrinsic and altruistic motives and values were the ones that brought satisfaction to the volunteers (Chow et al., 2021; Mekonen & Adarkwah, 2022). The literature shows that altruistic values are common among master naturalists (Newberry & Israel, 2018), MG (Schrock et al., 2000), and WS (Ryan et al., 2001).

Voluntary actions grounded in *altruistic values* refer to "self-sacrificial acts intended to benefit others regardless of material or social outcomes for the actor" (Schwartz & Howard, 1984, p. 229). Altruistic motivation is truly altruistic only when an individual (a) has a genuine concern/care for others' welfare, (b) has the desire to help others (e.g., community service), and (c) enjoys the intrinsic rewards coming from the act of volunteering (Bussel & Forbes, 2001). Giving behaviors of volunteers can be caused by shock – positive, negative, or neutral event; shock can create empathy and initiate actions (Neely et al., 2022).

The studies of the volunteering motives of Chinese students during the COVID-19 pandemic showed that altruistic (e.g., concern for the public) and extrinsic (e.g., private gains) motives impacted their volunteering engagement (Geng et al., 2022). Earlier studies found that extrinsic or egoistic values are demonstrated more often (self-interested concerns) and may be more predictive of volunteer behaviors than altruistic values (e.g., Mesch et al., 1998; Stern et al., 1993). Some research results indicated that motivational goals could be different but appear similar on the surface (Dwyer et al., 2013) and that volunteers act on both intrinsic (altruistic or other-centered) and extrinsic (egoistic or self-centered) motives (Cnaan & Goldberg-Glen,1991; Schrock et al., 2000). Putra et al. (2017) found that extrinsic motivation factors do not diminish the intrinsic motivation of employees, and the recent study published by Ryan and Deci (2000) showed that both extrinsic and intrinsic motivation could predict positive outcomes from the self-determination theoretical perspectives (e.g., enhanced autonomy, competence, and relatedness). The overlaps in research findings between intrinsic and extrinsic motivational factors show that the topic of volunteer motivation should be given serious attention, and the impact of varied factors on volunteer motivation during times of changes, crisis, emergencies, and uncertainties has to be further explored to provide Extension programs with relevant information for their better effectiveness.

Stewardship Action-Taking Experiences and Ability to Teach Others

Stewardship is an outcome of leadership behaviors that promote an organization or community's long-term well-being through personal responsibility (Hernandez, 2012). Bennett et al. (2018) wrote that "stewardship ethic might be derived from a person's sense of moral responsibility to

take care of others, a sense of responsibility for community resources, altruistic concerns for the future of the community, or an understanding of what is perceived to be the right thing to do for the community betterment" (p. 602). In our study, volunteer *stewardship actions* are defined as actions taken by individuals, groups, organizations, and networks of actors, with various motivations and levels of capacity, to protect, care, manage, and responsibly use their sources of the local communities (Bennett et al., 2018). Action-taking experiences of Extension MG and WS include varied types of volunteer experiences such as persuasion and education, physical and group/collective actions. Gaining knowledge and skills after training increases volunteer program participants' confidence and action-taking capacity (Merenlender et al., 2016; Strong & Harder, 2011; Windon & Buchko, 2022). See Table 1.

Table 1. Stewardship Actions: Types and Definitions

Actions	Definition	Examples	References
Educational actions	"Any action by an individual or group specifically aimed at the acquisition of knowledge" (Smith-Sebasto & D'Costa,1995, p. 16)	Self-education; other-focused education actions	Smith-Sebasto & D'Costa, 1995
Persuasive actions	Actions that are aimed at motivating others to reconsider their behaviors/actions	Persuading others to change attitudes and behaviors	Erdogan & Marcinkowski, 2012; Hungerford & Peyton, 1977; Smith-Sebasto & D'Costa, 1995
Physical actions	"Any action by an individual or group that is its primary consideration, some motor effort and not the exchange of monies aimed at preservation of the natural environment" (Smith-Sebasto & D'Costa,1995, p. 16)	Picking up litter, sorting trash, recycling, participating in community clean-up projects, and installing household resource-conserving devices	Smith-Sebasto & D'Costa, 1995
Group/Collective actions	The actions are taken as a part of a group	As mentioned above	As mentioned above

Smith-Sebasto and D'Costa (1995) defined *educational actions* as "any action by an individual or group specifically aimed at the acquisition of knowledge" (p. 16). Education actions can be grouped into self-education and other-focused education. Our study defines self-education actions as an individual's efforts to improve their behaviors or practices by modifying their beliefs and values through self-learning. The study by Measham and Barnett (2008) showed that self-education is a relatively rare motivator, yet seeking to educate others is the most common motivation for volunteering (p. 548). At the same time, Windon and Buchko (2022) showed that MG and WS preferred self-education over educating others and had very low interest in (a) raising awareness about the local community issues (e.g., water, and community gardens) and available resources, (b) spreading information about the actions taken by the Extension and local

organizational partners (e.g., clean-up projects), and (c) developing and delivering education modules and programs (p. 129). The literature shows that the main motivations for environmental stewards are their desire to learn and help the environment (Bruyere & Rappe, 2007; Merenlender et al., 2016; Newberry & Israel, 2018; Schrock et al., 2000; Takle et al., 2016). The psychological benefits include helping the environment, exploring, and being social (Newberry & Israel, 2018).

Other-focused education actions are defined as a volunteer's efforts to improve others' behaviors or practices by modifying their beliefs and values through learning. Volunteers who educate and teach others, for example, about existing community problems and practices that can improve the community's welfare also engage in social actions directed towards helping others, including individuals, groups, and communities (Snyder & Omoto, 2007). The other-focused education actions consist of pro-social behaviors that are beneficial to others, including helping, educating, informing, consulting, persuading, advising, sharing, consulting, and guiding others (Hungerford & Peyton, 1977; Patrick et al., 2018; Schott et al., 2019; Sin et al., 2021; Smith-Sebasto & D'Costa,1995). Krasny et al. (2014) found that teaching others is one of the strongest motivations for volunteer environmental stewards; New York City's oyster gardeners taught multiple audiences of different ages and felt that by teaching others about oysters, they were able to influence behaviors and even change city government policy.

MG and WS often use persuasive, physical, and group/collaborative actions as leader-educators. *Persuasive actions* are aimed at motivating others to reconsider their behaviors/actions (e.g., individuals, groups, businesses, industry, or government; Erdogan & Marcinkowski, 2012; Hungerford & Peyton, 1977; Smith-Sebasto & D'Costa, 1995). Examples of persuasive actions might include persuading others to behave in a manner that promotes the betterment of the community. The examples of physical actions include but are not limited to restoring public gardens and parks, cleaning up rivers or lakes, planting trees in the community area, and installing rain barrels in the individual gardens (Peronto & Murphy, 2009; Smith-Sebasto & D'Costa, 1995). The actions taken as a part of a group are called *collective actions*.

Collective actions are critical to engaging with the community for the common good. *Community engagement* is "the process of working collaboratively with groups of people affiliated by geographic proximity, special concern, community concern or similar situations to address the issues affecting them" (Alter et al., 2017, p. 3). To be engaged means "to play a meaningful role in the deliberations, discussions, decision-making and/or implementation of the projects or programs" (Alter et al., 2017, p. 3), affecting the community members. Community engagement is a powerful source of environmental, social, and behavioral changes to improve collective well-being. McDougle et al. (2011) found that the intensity of volunteer stewardship actions referred to social aspects. Sengupta and Al-Khalifa (2022), who conducted a qualitative study on the motivations of young women volunteers during COVID-19 in Bahrain, found that their main motivations were (1) love for the nation and fulfillment of their duty towards the country, (2) the

desire to do something for humanity and their fellow human beings, and (3) the opportunity to engage in doing something worthwhile and make a difference to the country. The benefits of community engagement during the pandemic included social connection, feeling proud and empowered, feeling in control of one's own life again, compensation for personal losses and tragedies, and confidence and hope (Sengupta & Al-Khalifa, 2022).

The action-taking capacity of volunteers is impacted by a variety of factors, including religion, societal norms, cultural beliefs, environmental conditions, demographics, values, and motives (Gutierrez & Mattis, 2014; Liarakou et al., 2011; McDougle et al., 2011; Measham & Barnett, 2008). Research studies conducted during the COVID-19 pandemic reported a positive connection between volunteer action-taking experiences and volunteer values (e.g., altruism and desire to help others), a sense of moral duty, and a desire to enhance their skills (Chow et al., 2021; Geng et al., 2022). Several studies stressed the importance of leadership and management competencies for enhanced action-taking experiences of volunteers during the pandemic (Chow et al., 2021; Siqueira et al., 2022; Windon & Buchko, 2022). Previous studies reported the negative impact of no volunteer training/experience on health (own and others) in times of emergencies (Whittaker et al., 2015). Quality volunteer training has been shown to help with recruitment and retention (Fahey et al., 2002; Hager & Brudney, 2004).

Previous studies identified some factors that prevent volunteers from taking voluntary stewardship actions. Among those factors were a lack of knowledge and skills (Lowndes et al., 2006; Reed, 2008), lack of empowerment and inclusion in decision-making (Chess & Purcell, 1999; Florin & Wandersman,1990; Videira et al., 2006), lack of rights and responsibilities given to local groups to promote and participate in co-management governance (Grafton, 2005), burnout (Chirico et al., 2021; Morse et al., 2020), lack of fit with the environment, context, task, and resources (Englert et al., 2020; Lewig et al., 2007; Ramos et al., 2015), and lack of satisfaction with volunteering experiences (Bozeman & Ellemers, 2009; Cheng et al., 2018; Kulik, 2007). The research shows that the action-taking capacity and experiences of volunteers can negatively be affected by a lack of competency (Alfes & Langner, 2017), lack of efficacy (Bandura, 1982; Bandura et al., 1999; Strong & Harder, 2011), lack of knowledge of the community problems (Pan et al., 2018; Schirmer & Dyer, 2018), and lack of motivation (Newberry & Israel, 2018; Strong & Harder, 2011). Understanding the importance of the relationship between volunteer motivation and action-taking experiences/capacity, we conducted this study to assess this relationship.

Purpose and Research Objectives

The study reported here is an offshoot of a more comprehensive study of volunteer stewardship conducted in 2022 (Windon & Buchko, 2022). This quantitative research aimed to assess the relationship between volunteer stewardship action-taking experiences (VSATE), their motivation toward engagement in volunteer activities (MTEVA), and their ability to teach others (ATO)

among the Penn State Extension MG and WS volunteers during the COVID-19 pandemic. Two research objectives guided the present study:

1. Describe the overall VSATE, MTEVA, and ATO among Penn State Extension MG and MW volunteers during the pandemic (COVID-19).
2. Describe to what extent MTEVA and ATO can explain VSATE during the COVID-19 pandemic.

Method

We used a survey research method to examine VSATE during the COVID-19 pandemic. We utilized an online survey via Qualtrics to collect data from the Penn State Extension MG and MW volunteers. This study examined the relationship between VSATE, MTEVA, and ATO among the Penn State Extension MG and MW volunteers.

Participants and Data Collection

Our target population was 3,000 Penn State Extension MG and WS. We followed Dillman et al.'s (2014) online data collection technique. We used a census approach because it allowed us to collect better demographic data and provide accurate results. We did not use a random sampling approach because the cost was not an issue in this research. The final data set included 1,196 responses, providing a response rate of 39.9%.

Instrumentation, Validity, and Reliability

A newly created survey instrument helped explore perceptions of stewardship action-taking experience, motivation toward volunteer actions, and ability to teach others among Penn State Extension MG and WS during the COVID-19 pandemic. We developed three new scales based on the existing literature. The first scale, the *VSATE (Volunteer Stewardship Action-taking Experience) Scale,* helped measure perceptions of volunteers' education actions. Second, the *MTEVA* (*Motivation Toward Volunteer Actions) Scale* measured the driving sources of volunteers to be engaged in volunteer activities. Third, the *Volunteer's Perception Regarding the ATO (Ability to Teach Others)* Scale measured the volunteer's perception of ability to teach others. A panel of eight Extension educators, Extension organization administrators, and academic faculty members with expertise in survey methodology reviewed the instrument for face and content validity. The panel of experts determined that the instrument was sufficiently valid. A pilot test was conducted to determine the instrument's reliability. Twenty-six Penn State Extension volunteer coordinators and educators participated in the pilot study. The response rate for individuals completing the pilot study was 83% (n = 21). The Pennsylvania State University Institutional Review Board approved the research design. The summary of the instrument, reliability statistics, examples of scale items, and literature used are provided in Table 2.

Table 2. Summary of the Instruments Used in This Research

The instrument, Cronbach Alpha Scale	Examples of scale items	Adopted and recommended items from the literature
VSATE Scale (6 items). Five-point Likert scale: 1 (never) to 5 (frequently). Cronbach Alpha: .83.	"Developing and delivering education modules and programs (e.g., in-class session or online)," "Continuously participating in educational events and updating my knowledge."	Adopted from the following: Alisat & Riemer, 2015; Cheng et al., 2018; Erdogan & Marcinkowski, 2012; Hungerford. & Peyton, 1977; Kim et al., 2007; Liarakou et al., 2011; Schwartz, 1977; Smith-Sebasto & D' Costa, 1992, 1995; Strong & Harder, 2011.
MTEVA Scale (7 items). The five-point Likert scale ranged from 1 = (strongly disagree) to 5 (strongly agree). Cronbach Alpha: .78.	"Volunteer activities that I am engaged in are personally meaningful to me," "Volunteer activities I am engaged in allow me to contribute to the community betterment."	The authors developed five items out of seven. Only two items were adapted from Bruyere & Rappe (2007) and Kim et al. (2007): "Volunteer activities that I am engaged in allow me to express my values" and "Volunteer activities that I am engaged in are personally meaningful to me."
Volunteer's Perception Regarding ATO Scale (3 items). The five-point Likert scale ranged from 1 = (strongly disagree) to 5 (strongly agree). Cronbach Alpha: .64.	"I would like to improve my knowledge on teaching adults/children."; "I am confident about my ability to teach specific topics to other volunteers."	Developed by authors.

Control for Nonresponse Error

We used Miller and Smith's (1983) approach and compared early and late responses to evaluate nonresponse errors in this study. The first 40 respondents were assigned as an early-phase respondent group, and the last forty were identified as a late-phase respondent group. Respondents' early and late phases were determined based on the day and time their questionnaire was submitted. We conducted an independent *t*-test to determine if the group mean for total scores on the three measured constructs differed between the two groups of respondents (early and late). The independent samples *t*-test (alpha level of .05, two-tailed) for equality of means for scale scores of constructs between early and late showed no statistically significant differences between early and late respondents. The *t*-test results suggested that nonresponse bias was not an issue (Lindner et al., 2001; Miller & Smith, 1983), and it revealed that the data collected from study participants were representative of the entire study population. We proceeded with caution in interpreting the study findings since the study participants were not a random sample. The results of this study will only apply to the study participants and cannot be generalized to the entire population of volunteers in the state.

Data Analysis

We used SPSS® version 26 to conduct data analysis for our study. This study used the VSATE as the dependent variable. The independent variables (MTEVA and ATO) were treated as interval data. We used descriptive statistics to describe the first research objective. We applied the Pearson correlation coefficient for the second research objective to measure associations between VSATE during the COVID-19 pandemic, MTEVA, and ATO. A multiple linear regression analysis helped to explain the relationship between the variables of interest. Also, we used the standards of the Davis Conventions (1971) to describe the magnitude of the correlation between the independent and dependent variables.

Results

The first research objective was to describe the VSATE, MTEVA, and ATO among Penn State Extension MG and MW volunteers during the COVID-19 pandemic. The mean summative score for the VSATE, MTEVA, and ATO is shown in Table 3. A higher score indicates a higher level of agreement with the scale statement. A lower score indicates a lower level of agreement among study participants' scale statements.

Table 3. Mean and Standard Deviation of VSATE, MTEVA, and ATO During the Covid-19 Pandemic

Item	*N*	*M*	*SD*
Volunteer Stewardship Action-Taking Experiences (VSATE)*	1,100	2.32	.787
Motivation toward Engagement in Volunteer Activities (MTEVA)**	1,196	4.03	.537
Ability to teach others (ATO)**	1,102	3.48	.517

Note. *The scale's items were measured using a five-point Likert scale ranging from 1 = (*never*) to 5 (*frequently*); ** The scale's items were measured using a five-point Likert scale ranging from 1 = (*strongly disagree*) to 5 (*strongly agree*).

The second research objective was to Describe to what extent MTEVA and ATO can explain VSATE during the COVID-19 pandemic. Application of the Pearson correlation coefficient showed a significantly low positive association between VSATE and MTEVA ($r = .280$, $p \leq .001$) and a moderate positive association with the ATO ($r = .321$, $p \leq .001$). A multiple linear regression analysis was conducted to determine the relationship between VSATE (the dependent variable), MTEVA (the independent variable), and ATO (the independent variable). The assumption of normality was tested, and an examination of the residuals and the boxplot showed a normal distribution shape. The results indicated that a significant proportion of the total variance in VSATE during the COVID-19 pandemic was predicted by the motivation toward engagement in volunteer actions and the ATO F (2, 1,089) = 96.723, $p \leq .001$. Multiple R^2 indicated that approximately 15.1% of the variation in VSATE during the COVID-19 pandemic could be explained by MTEVA and ATO (Table 4).

Table 4. Multiple Regression Analysis Between VSATE during the COVID-19 Pandemic and MTEVA and ATO

Model Fit					Change Statistics				
	R	***R^2***	**Adj. *R***	***S.E.***	***R^2***	***F***	***df1***	***df2***	***p*-value**
1	.388	.15	.149	.73	.151	96.723	2	1,089	.001

Note. $p < .05$

Analysis of variance in overall VSATE is presented in Table 5. Within the final model, the MTEVA was a significant predictor of volunteers' stewardship action-taking experiences (β = .224; $p \leq 001$), as well as the ATO (β = .275; $p \leq 001$). Multiple relations coefficients are presented in Table 6.

Table 5. Analysis of Variance in VSATE during the COVID-19 Pandemic

Model	**Sum of Squares**	***df***	**Mean Square**	***F***	***p*-value**
Regression	102.410	2	51.205	96.723	.001
Residual	576.515	1,089	.529		
Total	678.925	1,091			

Note. $p < .05$

Table 6. Multiple Relations Coefficients

Model	***B***	***SER***	***β***	***p*-value**
Constant	-.234	.193		.227
Motivation toward engagement	.339	.043	.224	.001
Ability to teach others	.340	.035	.275	.001

Note. $p < .05$

Discussion and Recommendations

The knowledge gained through this work can expand current understanding regarding the nature, scope, and value of volunteer stewardship action-taking. Theoretically, this study takes an interdisciplinary approach that can apply to the volunteer stewardship literature in Extension education and nonprofit sectors, specifically to environmental volunteer education research.

The literature related to environmental volunteers is substantial. However, there is a lack of volunteer stewardship action-taking studies among community volunteers. The originality of this article is in generating essential insights about volunteer stewardship action-taking, especially in times of uncertainty, such as the COVID-19 pandemic. The findings of our study are consistent with previous studies. The results of this study showed that MTEVA and their ATO significantly predicted VSATE during the COVID-19 pandemic during the pandemic (COVID-19). Ockenden and Hutin (2008) found that allowing volunteers to participate in decision-making and provide input can increase volunteer engagement and enthusiasm. Measham and Barnett (2008) wrote

that volunteers seeking to educate others were likely to motivate others to volunteer. Mayr (2017) emphasized that the training for volunteer leaders should include topics related to volunteer motivation (Grabsch & Moore, 2021) and application to real-life situations (Konuk & Posner, 2021). Stewardship is an outcome of leadership behaviors promoting an organization's well-being (Hernandez, 2008).

A limitation of this study was that we used a convenience sample. Our participants were an available primary data source. A randomized sample of all MG and WS volunteers at Penn State would have strengthened this study. We collected data during the COVID-19 pandemic (late Spring 2021) from existing MG and WS that could affect participants' responses specifically to the stewardship action-taking experiences and motivation toward engagement. Neely et al. (2022a) indicated that the volunteer motivation factor initiates volunteer actions and creates empathy.

The results of our study suggest that volunteer coordinators and Extension and outreach professionals should stimulate volunteers to take action in their local communities by encouraging them to participate in a program that focuses on volunteer motivation toward engagement in volunteer actions and skill enhancement, particularly the enhancement of volunteer leaders' ability to teach others. Windon and Buchko (2022) found that the relevance of the Extension volunteer programs was positively connected to volunteers' satisfaction and retention.

In times of uncertainty, Extension and environmental educators and volunteer coordinators should consider (1) conducting a needs assessment to examine the factors that affect local volunteer leaders to take stewardship actions in local communities, (2) revising or developing volunteer management programs that will help to enhance the stewardship action-taking experience among local community leaders, and (3) increasing volunteer leaders' motivation toward engagement-by enhancing the volunteer-leader skills, including the capacity of volunteer leaders to teach others in their community.

At the same time, the findings can be helpful to other volunteer programs in other states if their volunteers take similar to our participants' roles and have to be better prepared to address the communities' needs in these roles, especially in times of emergency like the COVID-19 pandemic. Being better prepared for community volunteer leaders' roles can help motivate other community members to engage in volunteer activities, especially during sudden changes and demands.

For future research, we encourage future researchers to revise our instrument using the panel of experts from their state and conduct a pilot test. We suggest future research focus on identifying different factors that can affect volunteers' stewardship action-taking experiences, including the impact of community trust and commitment. We also recommend conducting further research that helps to build a more rigorous scientific base in VSATE during times of uncertainty and

change. We also propose that future research address the same research problem with different samples and locations; volunteer motives can vary due to their dynamic nature and the impact of direct and indirect factors.

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