

Supporting AmeriCorps Volunteer Learning During the COVID-19 Pandemic: A Social Learning Perspective

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Volunteers are the backbone of civil society, and learning can be critical to their engagement and to the quality of their service. However, the COVID-19 public health crisis was associated with a global decline in formal volunteering. This context highlights the need to understand how nonprofit leaders and volunteer administrators can sustain volunteer learning during a disaster period. Drawing on social learning theory and comparing datasets from four consecutive cohorts of AmeriCorps State and National volunteer members - two who served during the pandemic (2020 and 2021 members) and two before the pandemic (2018 and 2019 members), findings showed that those who served during the pandemic reported lower levels of learning outcomes. Nonetheless, perceptions of positive role models and helpful feedback attenuated this negative association, and community service self-efficacy mediated it. The findings support social learning theory and emphasize the importance of positive role modeling and constructive feedback as effective managerial practices for sustaining volunteer learning amid the operational and social disruptions.

Keywords: Volunteer Management, Learning outcomes, the COVID-19 pandemic, social learning theory, AmeriCorps

Introduction

Since early 2020, individuals in the United States have experienced many life-changing events, including the COVID-19 public health crisis, social distancing measures, and subsequent shifts in work and life arrangements. These developments unfolded alongside heightened social tensions, including highly visible incidents of police brutality, racial justice movements, and a divisive presidential election (Cervantes & Zuhlke, 2025). The pandemic and its broader social contexts significantly disrupted formal volunteering and have lasting implications for the future of volunteerism, such as greater online and informal engagement (Dietz & Grimm, 2023; Nesbit et al., 2024; Nichols, 2024; Rong, 2022; Yang, 2025). As nonprofit leaders adapt to this evolving landscape, fostering volunteer learning is essential to sustaining participation and engagement (Dietz & Grimm, 2023; Susanti et al., 2023).

Volunteer learning is a primary function of volunteering and an important volunteer motivation (Clary et al., 1996, 1998; Fullwood & Rowley, 2021; Hager & Brudney, 2008; Kemp, 2002). Learning is defined as “the process of enhancing human capital through acquiring knowledge,

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skills, abilities, attitudes, and other characteristics” (Noe et al., 2014, p. 247), which involves both a process of behavioral change and a set of learning outcomes (Filstad, 2004). Volunteering helps volunteers develop various types of knowledge (Mündel & Schugurensky, 2008), personal and career-related skills (Cohen, 2009; Gulliver et al., 2023; Haski-Leventhal et al., 2020; Kemp, 2002), and social networks (Fullwood & Rowley, 2021; Spera et al., 2015). Volunteer learning often occurs through social learning pathways, such as learning from peers, staff members, and service clients and communities (Fullwood & Rowley, 2021). However, the onset of the COVID-19 pandemic and the associated social context disrupted and transformed the social interactions and collaborations that facilitate learning during volunteering.

While research on volunteer learning during the pandemic is scarce, scholars have discussed the COVID-19 pandemic’s influence on nonprofit workers’ experiences (Kuenzi et al., 2021) and called for more research on volunteer perspectives (Kulik, 2022). It is also of practical value to understand what volunteer managers can do when community volunteerism is most needed in crises. In response, the present study examined the perceived learning outcomes of AmeriCorps volunteer members during the pandemic, compared to before the pandemic, and evaluated the managerial practices that effectively sustained learning during the pandemic. To this end, the study asked two research questions: How was the COVID-19 pandemic and its associated context linked to AmeriCorps volunteers’ perceived learning outcomes? Which managerial and individual factors were more strongly associated with perceived learning outcomes during the pandemic compared to before the pandemic?

To answer these questions, this study draws on primary survey data from four consecutive cohorts of AmeriCorps State and National service volunteers who served one-year terms, including two cohorts who completed their service before the COVID-19 pandemic and two cohorts who served during the pandemic, with their service experience impacted. Established in 1993, AmeriCorps is a federal agency that recruits stipended volunteers as members to serve their communities with the mission to “improve lives, strengthen communities, and foster civic engagement through service and volunteering” (AmeriCorps.gov, 2025, p. 2). Enhancing learning, education, employment outcomes, and life skills fulfills AmeriCorps’ legislative goals (Abt Associates Inc. & CNCS, 2008; AmeriCorps.gov, 2025) and provides important self- and civic-development benefits to members (Abt Associates Inc., 2004; Frumkin et al., 2009; Frumkin & Jastrzab, 2010). Studying learning in the AmeriCorps context supports multiple aims of AmeriCorps and its members and volunteers.

While many studies have drawn on the volunteer management literature to identify effective practices that enhance engagement and retention (Dhebar & Stokes, 2008; Dwyer et al., 2013; Einolf, 2018; Fullwood & Rowley, 2021; Walk et al., 2019), this research examines managerial support practices through the lens of social learning to explain and predict volunteers’ perceived learning outcomes in a national and community service context. In doing so, it contributes to both academic and practitioner knowledge on volunteer learning in AmeriCorps and similar community service volunteer programs during a crisis period (Dietz & Grimm, 2023; Kulik, 2022; Nesbit et al., 2024).

Literature Review and Hypotheses

Volunteer learning during the COVID-19 pandemic

According to Clary et al. (1996, 1998)’s Volunteer Functional Inventory (VFI) theory, learning is a key function of volunteering and an important motivation for volunteerism. Learning can fulfill volunteers’ desire to understand the world and their service beneficiaries (the understanding function) and their need to develop personal and career-related skills and networks (the career

function). Volunteer learning not only develops volunteers but also fosters nonprofits' service quality and creates conditions for broader social change via strengthened civic attitudes and democratic competencies (Dewey, 1997; Perry & Katula, 2001; Ward, 2014). Research finds that incorporating learning opportunities promotes volunteer participation and engagement in many nonprofit and community service contexts (Clary et al., 1996, 1998; Handy et al., 2010; Harflett, 2015; Mesch et al., 1998; Perry et al., 1999; Stukas et al., 2016).

Volunteer learning occurs through an individual process of knowledge acquisition and a collaborative process facilitated by social interactions and discourses (Chen & Bryer, 2012; Fullwood & Rowley, 2021; Ma, 2025; Velarde, 2020). This social and collaborative perspective is analogous to the description of learning by the philosopher John Dewey (1997) as an interactive experience resulting from active participation in community affairs in a democratic society. This perspective regards volunteers as free agents who proactively seek out and engage in various learning activities and social collaborations to achieve their desired learning outcomes (Duguid et al., 2013; Fullwood & Rowley, 2021; Mündel & Schugurensky, 2008; Sin, 2009; Velarde, 2020).

Concerning learning mechanisms, volunteers learn through formal learning, which includes structured organizational training and orientation, and informal learning, which includes self-navigation of learning resources, sustained practice of knowledge and skills, self-reflection, and knowledge-sharing behaviors (Coghlan & Gooch, 2011; Fullwood & Rowley, 2021; Noe et al., 2014; Velarde, 2020). Research suggests that the majority of volunteer learning outcomes stem from informal learning outside of formal organizational structures, which leads to significant knowledge gaps in our understanding of the factors that facilitate the broad spectrum of volunteer learning outcomes (Duguid et al., 2013; Fullwood & Rowley, 2021; Velarde, 2020).

An emergent body of research has begun to explore some of the factors connected with greater levels of volunteer learning outcomes, including volunteers' community service self-efficacy (Ma, 2024), training and supervisor support (Fullwood & Rowley, 2021; Griffiths & Armour, 2012; Velarde, 2020), and the cultural settings and service arrangements in which volunteers are embedded (Busse et al., 2014; Fee & Gray, 2013; Kemp, 2002). However, there is much to learn about how the pandemic has influenced volunteer learning and altered the roles of individual and managerial factors related to perceived learning outcomes.

In the individual learning literature, experiencing "critical events" and "critical periods" may enhance learning (Cope & Watts, 2000). Individuals might gain self-efficacy and resiliency when pulling through a difficult situation and helping others (Bandura, 1997; Luthans et al., 2007). As the pandemic exposed vulnerabilities in many service communities (Benavides & Nukpezah, 2020; Morrow-Howell et al., 2020), some volunteers expressed a stronger sense of responsibility and a greater desire to support vulnerable populations (Mion & Chiaramonte, 2022; Tempski et al., 2021). Furthermore, the pandemic led to increased service demand across various nonprofit subsectors, particularly in youth development (Carvalho et al., 2022), food service (Azevedo et al., 2022), and public health education and information (Susanti et al., 2023), providing more learning opportunities in these service areas.

Nonetheless, the pandemic has led to significant operational and social challenges for workers (Fearn et al., 2021; Kaushik & Guleria, 2020; Sandage, 2020). In business settings, motivating and developing employees has become more difficult, leading some HR practices to strategically pivot from structured organizational training toward greater emphasis on flexibility, learning new technologies, and developing relationship-building skills while maintaining worker safety (Kaushik & Guleria, 2020; Zajac et al., 2022). For nonprofit volunteers, their experiences were characterized by a sense of fear, overall unpreparedness, concerns about their health, limited resources and personal protective equipment, and burnout from high workloads during the

pandemic (Phillips et al., 2022; Susanti et al., 2023). These experiences may have taken a toll on volunteers' well-being and dampened their perceived learning outcomes.

Furthermore, the pandemic largely disrupted the in-person volunteering modality, which hindered volunteers' social interactions, especially informal conversations and personal connections built through face-to-face interactions that might help volunteers gain a deeper understanding of their service clients and communities (Fee & Gray, 2013) and access to networks that may lead to future employment opportunities (Spera et al., 2015; Velarde, 2020). Given these rationales, the study proposes the following hypothesis:

Hypothesis 1: Compared with AmeriCorps members who served before the pandemic, volunteer members who served during the pandemic report lower levels of learning outcomes.

Facilitating social learning pathways through volunteer management during the COVID-19 pandemic

Social learning theory holds that learning is a process of social construction through sustained social discourse and collaboration (Johnson, 2002; Vygotskiĭ & Cole, 1978). One example of social learning is learning from positive role models (MacCallum & Beltman, 2022). A positive role model is someone who “motivates, inspires, or assists others to engage in similar behaviors” (MacCallum & Beltman, 2022, p. 19). Bandura (1971, 1997) theorized that learning from role models is a form of vicarious learning, in which individuals learn indirectly from others' experiences to avoid costly mistakes by learning through trial and error.

There is little research on volunteers' social learning through positive role models within nonprofit or public organizational contexts (Fullwood & Rowley, 2021). However, research in general work settings suggests that employees learn from observing and emulating positive role models (Manz & Sims, 1981). Formally assigned mentors may serve as role models, but various organizational actors, including leaders, senior employees, secretarial staff, and peers, could also become role models for new employees over time (Latham & Saari, 1979). In addition to specific knowledge and skills, positive role models facilitate employees' development of social and affective skills, adopt an organizational role identity, and enhance motivation and resilience during periods of uncertainty (Filstad, 2004; St-Jean & Audet, 2012).

Research on leveraging positive role models to elicit favorable volunteer outcomes is scarce (Schreiner et al., 2018). Emergent studies emphasize the importance of motivational leadership and the role of positive attitudes of volunteer leaders and administrators in enhancing volunteer retention and service satisfaction (De Clerck et al., 2021; Dwyer et al., 2013; Schreiner et al., 2018; Tsai et al., 2024), which may be connected to learning and self-development (Piatak & Carman, 2023). During the COVID-19 crisis, Kwan et al. (2024) note that nonprofit leaders can support their staff by setting visionary directions and providing them with guidance and compassion. Indeed, when nonprofit staff perceive their leaders as exemplars who can “walk the talk,” they may increase their own service motivation (Kwan et al., 2024, p. 732). The leader-staff dynamic may extend to volunteers and their interactions with volunteer leaders, staff, peers, service clients, and community members.

Another aspect of social learning theory emphasizes the importance of social discourses and feedback on individual learning outcomes (Chen & Bryer, 2012). Volunteers value regular feedback and timely communication that help them understand the impact of their service and how to improve it (Carvalho & Sampaio, 2017; Dhebar & Stokes, 2008; Einolf, 2022; Gautam et al.,

2022). Despite the challenges associated with the online service environment, receiving feedback can provide a sense of normalcy and guidance during the pandemic (Sandage, 2020). Therefore, volunteers may value feedback even more during the pandemic, with greater feedback leading to improved learning outcomes.

In addition to positive role models and feedback, training is an essential component of organizational support closely linked to volunteer satisfaction and retention (Walk et al., 2019, 2022). Training helps volunteers understand their roles, service expectations, and their service missions and populations (Saksida et al., 2017). Formal structured training and informal learning are mutually reinforcing, enhancing overall learning (Jeong et al., 2018). For example, receiving adequate, well-organized training, such as harm reduction and listening skills training, is associated with higher learning outcomes among public health volunteers (Gresh et al., 2021; Kulik, 2022; Tran et al., 2022; Windon et al., 2023). While training is essential for developing volunteers at all times, training during the pandemic may serve additional functions, such as helping them feel safe and stay engaged (Chanana & Sangeeta, 2021).

Because volunteer managers and organizational leaders can incorporate and strengthen support practices, such as serving as positive role models, providing constructive feedback, and offering adequate training (Kwan et al., 2024; Nesbit & Brudney, 2010; Walk et al., 2022), the study proposes the following set of hypotheses, assuming Hypothesis 1 is supported.

Hypothesis 2a: Positive role models moderate the relationship between serving during the pandemic and AmeriCorps members' perceived learning outcomes, such that role models attenuate the negative association between serving during the pandemic and perceived learning outcomes.

Hypothesis 2b: Helpful feedback moderates the relationship between serving during the pandemic and AmeriCorps members' perceived learning outcomes, such that feedback attenuates the negative association between serving during the pandemic and perceived learning outcomes.

Hypothesis 2c: Adequate training moderates the relationship between serving during the pandemic and AmeriCorps members' perceived learning outcomes, such that training attenuates the negative association between serving during the pandemic and perceived learning outcomes.

The role of self-efficacy in volunteer learning outcomes in crisis times

According to Bandura (1977, 1997), individual learning processes and outcomes are shaped by dynamic, reciprocal interactions between the environment and the exercise of individual agency. Self-efficacy, defined as an individual's conviction that they can execute the required behaviors to achieve their desired outcomes in a specific context, is central to human agency (Bandura, 1997). A high level of self-efficacy motivates individuals to undertake more challenging learning activities, facilitating learning across a wide range of life and work domains (Ahmed et al., 2021; Bandura, 1997; Cabrera et al., 2006; Joo et al., 2013; Zimmerman, 2000). Additionally, individuals can draw on self-efficacy, along with optimism, hope, and resilience, as aspects of psychological capital during times of uncertainty and setbacks (Luthans et al., 2007). High levels of self-efficacy enable individuals to mobilize their motivation, cognitive resources, and courses of action to bring about their desired social changes (Luthans, 2002).

Self-efficacy may be related to learning among community-service volunteers during a crisis period. Self-efficacy is malleable, meaning it can be enhanced through volunteering and sustained service practices (Eden & Kinnar, 1991; Harp et al., 2017). Although research on how crises influence self-efficacy is limited, the existing literature suggests a complex interplay between volunteer self-efficacy and crisis situations. In particular, pandemic-related stress and uncertainty could weaken one's sense of control over the external environment (Pressley & Ha, 2021), but volunteers might also develop a stronger sense of personal agency to help their communities as they see their efforts become more urgent in a time of need (Mion & Chiaramonte, 2022; Tempski et al., 2021). Therefore, it is hypothesized that:

Hypothesis 3: Self-efficacy mediates the perceived learning outcomes for AmeriCorps members who served during the COVID-19 pandemic.

Methods

Study Context and Service Activities

The study draws on the research context of the AmeriCorps State and National (ASN) programs in the State of Ohio, supported through a collaboration with ServeOhio (the Ohio Commission on Service and Volunteerism). ASN programs adopt a federal structure, with each state having a commission that oversees a broad array of community service programs (AmeriCorps.gov, 2025). Distinct from other types of volunteers, AmeriCorps members are defined as “stipended volunteers” (Tschirhart et al., 2001), as they receive a modest living stipend and an education award upon service completion (ServeOhio, 2024a, 2024b). Most members sign a contract with their host service agency to perform a year of “1,700 hours within 12 months” (ServeOhio, 2024b, p. 2).

ServeOhio is the Ohio Commission on Service and Volunteerism (ServeOhio, 2024a). Each service year, ServeOhio engages about 900 members and places them at more than 500 service sites through partnerships with local nonprofits, community organizations, and public agencies across the state (ServeOhio, 2024a). ServeOhio provides all members with service- and technology-related training and orientation at the beginning of a service year. Regarding service areas, ServeOhio AmeriCorps' programs encompass education, economic opportunity, and health and sustainability focuses (ServeOhio, 2024a). Education programs aim to enhance learning opportunities and strengthen schools; economic opportunity programs seek to improve skills and community impact; and health and environmental programs promote health, wellness, and environmental sustainability (ServeOhio, 2024a). Members participate in a wide range of service activities through these programs, including teaching, building community gardens, cleaning up trails, and providing resources for job seekers (ServeOhio, 2024a).

Data Collection Procedure and Changes during the Pandemic

To examine how member learning outcomes differed during the pandemic, an annual survey was administered targeting all members in Ohio from the 2017-18, 2018-19, 2019-20, and 2020-21 service years. ServeOhio sent Qualtrics survey links to all in-service volunteers and encouraged them to complete the surveys during service hours. The data collection was part of a larger project that included entry and exit surveys to evaluate members' service experience. Given that only the exit surveys included measures of perceived learning outcomes, the analyses used the exit surveys. Entry surveys were employed for robustness checks, detailed in the next section.

A total of 978 members responded to the exit surveys, representing a response rate of 32.13%. Compared with the previous two service-year cohorts, the 2019-20 and 2020-21 volunteers' service was impacted by the pandemic. Particularly, in January 2020, the World Health Organization declared the COVID-19 pandemic, and in March 2020, Ohio issued stay-at-home guidelines that remained in place until June 2021 (Ohio.gov, 2020, 2021). Since the 2019-20 members completed the exit surveys from July to September 2020, they had experienced the pandemic for three to five months at the time of survey administration. The 2020-21 volunteers began their services in August or September 2020, with most of their service experience during the pandemic.

According to an earlier interview with ServeOhio leaders, most Ohio AmeriCorps programs sustained their service during the pandemic by adapting their service modality from in-person to online. As a result, 85% of the 2019–20 cohort and 77% of the 2020–21 cohort served online. For instance, in literacy programs, volunteer tutors continued to read stories to children through synchronous online sessions. A small minority of volunteers continued in-person services while observing social distancing guidelines, such as those who performed food delivery, elderly care, or trash pickup.

Table 1 describes the study sample, including information on the service year and cohort, the timing of survey administration, and the respective and overall survey response rates.

Table 1. Sample description by service year cohorts

Member Service Year	Month of Survey Administration	Responses	Response Rates	Pandemic's Influence on service modality
2017-18	May 2018	266	266/762 = 34.91 %	In-person
2018-19	June 2019	262	262/852 = 30.75 %	In-person
2019-20	April 2020	269	269/752 = 35.77%	85% online
2020-21	May 2021	181	181/678 = 26.70%	77% online
Overall Response Rate			978/3,044= 32.13%	

Analytical strategy

The analyses employed linear regression to examine whether the pandemic was associated with lower levels of perceived learning outcomes. Linear regression enables the examination of associations between independent and dependent variables (Gujarati, 2015), with a key identification strategy being the conditional independence assumption (CIA). CIA assumes that when observed characteristics are controlled for, selection bias disappears (Angrist & Pischke, 2009). Accordingly, the study's linear regression models incorporated a comprehensive set of control variables, including volunteer demographic, programmatic, and other contextual factors (Haneuse, 2016). Before regression analyses, t-tests were employed to compare cohorts of members who served before and during the pandemic to assess sample balance (Kerwin et al., 2024).

Subsequent analyses examined both mediation and moderation effects. A mediating effect explains “how” a process occurs, while a moderating effect disentangles “when” or what factors

influence the nature (e.g., magnitude and/or direction) of an antecedent on an outcome (Aguinis et al., 2017, p. 2; Hayes, 2018).” Mediation effects were tested using Hayes’s (2018) analytical procedures with bootstrapping (Zhao et al., 2010). Moderation effects were assessed by estimating interaction terms between the study’s independent and moderating variables (Gujarati, 2015). In addition, robust standard errors were employed to address heteroscedasticity, and standardized residuals with absolute values exceeding 2 were adjusted to account for outliers (UCLA Statistical Methods and Data Analytics, 2024).

Further, the study employed several robustness checks. First, t-tests were conducted to assess potential selection bias by comparing the entry and exit samples on time-invariant factors such as member demographics and members’ program characteristics. Given the limited overlap between the entry and exit samples, the entry sample was used to examine potential selection bias. In total, 1,165 members responded to at least one survey, with 414 completed entry surveys and 976 completed exit surveys (225 completed both), yielding a pooled response rate of 38.27%. As shown in Appendix A, respondents to the entry and exit surveys were largely similar in demographic and program-related characteristics, with a few exceptions. Specifically, members who completed the exit survey were more likely to serve part-time, enroll in Education-focused programs, and serve in larger programs. Overall, the robustness test suggested low selection bias with respect to demographics but some selection bias with respect to their program characteristics.

An additional robustness check was whether learning outcomes were clustered within specific service programs. If members in the same programs reported similar levels of perceived learning outcomes due to program-level variation. If such clustering exists, it is important to account for this within-program variation using Hierarchical Linear Models (HLMs) (Hox, 1998). The analyses examined the intraclass correlation coefficient (ICC) to test this possibility. ICC was 0.0023, indicating that fewer than 1% of members’ learning outcomes were clustered at the program level. Therefore, the ICC was small (the threshold is 0.05 for substantial clustering effects) and supported the use of linear regression as an appropriate modeling choice (Hox, 1998). The result aligns with AmeriCorps research, which finds members’ self-development outcomes are not program-specific (Abt Associates Inc., 2004; Abt Associates Inc. & CNCS, 2008).

Measures

Unless otherwise noted, each item measured the extent to which members agreed with the provided statements, where the scale was 1 = no extent; 2 = little extent; 3 = some extent; 4 = much extent; and 5 = great extent. The information on the measurement of all variables is provided below.

Dependent Variable: Learning Outcomes

Learning outcomes generally encompass volunteers’ sense of overall learning and various types of knowledge, skills, and social networks (Livingstone, 1999; Mündel & Schugurensky, 2008; Noe et al., 2014). Thus, the survey adopted a published scale that captures the multifaceted learning outcomes in a community service volunteer context with a focus on informal learning (Ma, 2025). Volunteers rated the extent to which they agree with the following items: “I learned from my AmeriCorps experience,” “I gained useful knowledge from my service,” “I mastered the skills necessary to perform my service activities,” and “I increased my network of professional contacts.” Principal Component Analysis (PCA) is utilized to estimate factor scores for analysis (Shrestha, 2021). As a linear transformational statistical technique, PCA reduces the number of items into composite variables, capturing the main components as weighted sums of the original items (DeVellis, 2017). Based on the eigenvalue of $2.13 > 1$ (Shrestha, 2021) and Cronbach’s alpha of 0.63 (Garson, 2016), PCA demonstrated adequate fit and extracted one component score as the

independent variable for regression analyses. The factor loadings of each item are included in Table 2.

Table 2. Descriptive statistics (N=978)

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Learning outcomes (factor score, items below)	0.00	1.00	-3.21	1.09
Feel learned (factor loading: .87)	4.56	0.69	1	5
Gained knowledge (factor loading: .89)	4.49	0.73	1	5
Mastered skills (factor loading: .56)	4.14	0.79	1	5
Increased Network (factor loading: .55)	3.75	1.26	1	5
Volunteering during the Pandemic	0.46	0.50	0	1
Positive Role Models	4.34	0.80	1	5
Helpful Feedback	4.07	0.92	1	5
Valuable Training	4.31	0.84	1	5
Self-efficacy: Confidence (factor score)	0.00	1.00	-4.30	1.19
Self-confidence (factor loading: .91)	4.42	0.67	1	5
Self-assurance (factor loading: .88)	4.29	0.71	1	5
Self-efficacy: Control (factor score)	0.00	1.00	-2.23	1.62
Sense of influence (factor loading: .92)	3.34	1.10	1	5
Sense of control (factor loading: .93)	3.52	1.10	1	5
Age	34.30	13.36	22	85
Gender: Men	0.22	0.41	0	1
Gender: Women	0.76	0.43	0	1
Gender: Non-binary	0.03	0.15	0	1
Race & Ethnicity: White	0.60	0.49	0	1
Race & Ethnicity: Black	0.24	0.43	0	1
Race & Ethnicity: Hispanic	0.05	0.21	0	1

Race & Ethnicity: AAPI	0.02	0.18	0	1
Race & Ethnicity: Other	0.08	0.27	0	1
Education: High School	0.03	0.16	0	1
Education: College	0.79	0.41	0	1
Education: Graduate	0.18	0.39	0	1
Part-time member	0.25	0.44	0	1
Returned Member	0.31	0.46	0	1
Program Size	61.52	36.13	10	120
Program Focus: Education	0.75	0.44	0	1
Program Focus: Economic	0.13	0.33	0	1
Program Focus: Health and Env.	0.13	0.33	0	1
Financial Stress	3.85	1.15	1	5
Service Stress	3.16	1.14	1	5
Service Completion	0.93	0.26	0	1
Prior Service Leadership Exp.	0.67	0.47	0	1
Lived in Service Area	0.66	0.47	0	1

Independent, Moderating, and Mediating Variables

Volunteering during the pandemic is measured by a binary indicator variable. Volunteers who served during the 2019-20 and 2020-21 service years were coded as 1, and those who served in the 2017-18 and 2018-19 service years were coded as 0.

Having positive role models was measured by an item: “I had positive role models in my AmeriCorps service environment.”

Receiving useful feedback was measured by one survey item: “I got useful feedback on my performance as an AmeriCorps member.”

Receiving adequate training was measured by the item: “I was adequately trained and otherwise prepared to perform the service.”

Service-related self-efficacy was measured using a context-specific community service-related self-efficacy scale (Ma & Tschirhart, 2021). The four items included in the scale were: “I am self-assured about my capabilities to perform my service activities,” “I am confident about my ability

to do my service activities,” “I have significant influence over what happens in my service program,” and “I have a great deal of control over what happens in my service program.” The survey items used the present tense because specific self-efficacy is a perception of one’s current state and is constantly changing (Bandura, 2006; Chen et al., 2004). Applying PCA, two components were extracted based on an eigenvalue of 2.12 and a Cronbach’s alpha of 0.79 (Factor loadings in Table 2). Members’ sense of confidence and self-assurance are loaded onto one component, and influence and control are loaded onto the second component, given the names “Self-efficacy: Confidence” and “Self-efficacy: Control.”

Control Variables

Age was measured as a continuous variable by using service year minus the year of birth. *Gender* was measured by having members select one of the following categories: men, women, and non-binary. *Race and ethnicity* were measured by members’ choices of White/Caucasian, Black/African American, Caribbean, East Asian, Hispanic/Latino, Middle Eastern, Native American or Alaska, Native Hawaiian or Other Pacific Islander, South Asian, Mixed, and other races and ethnicities. Given few members were identified in ethnic minority categories, the variable was recoded into White/Caucasian, Black/African American, Hispanic, AAPI (including East Asian, Native Hawaiian or Other Pacific Islander, and South Asian), and other racial minorities (including Caribbean, Native American or Alaska Native, Middle Eastern, Mixed, not identified, and other). *Education level* was measured as a categorical variable, including high school or below, college graduate, and graduate degree or above.

Additionally, the study controlled for members’ program contextual factors that provided information on their AmeriCorps program characteristics, including members’ time commitment, return status, program focus, and program size. *Part-time* was measured as a binary variable, including “full-time (40 hours of service per week)” and “part-time (less than 40 hours of service per week).” *Return status* was a binary variable, including “new member” and “returned member.” *Program size* was measured by the natural log of the total number of members in each program of each service year. *Program focus* was measured as a nominal variable, including education programs, economic opportunity programs, and health and environment programs.

The study controlled for members’ financial and service stress (Ceresola, 2018), as stress has been shown to correlate with learning outcomes across contexts. *Service stress* and *financial stress* were measured using the following survey items, respectively: “My AmeriCorps service activities are stressful” and “I feel stress related to my financial situation.”

Service completion accounted for members who exited their service earlier due to the pandemic. Service completion was measured as a binary variable through the question: “Did you fully complete your term of service?” If “yes” or “I will have my hours completed before I end my term” were selected by members, the variable was coded as 1; if “no” was selected, the variable was coded as 0.

Prior service leadership experience was measured by a question: “I had prior community leadership experience prior to the AmeriCorps program.” If members chose “yes,” the variable was coded as 1; if members chose “no,” the variable was coded as 0. Members’ prior service leadership experience was controlled for because such experience might reflect greater learning motivation.

Lived in Service Area was measured as a binary variable by one item in the survey: “I lived in the area where I did/am doing my service.” If members chose “yes,” the variable was coded as 1; if members chose “no,” the variable was coded as 0.

Results

Table 2 presents descriptive statistics, and Appendix B reports correlations among all variables. The dependent variable items exhibited positive skewness, indicating that more volunteers reported learning “much” or “to a great extent” during service. Furthermore, the average age of members was 34, identified as women (76%), White (60%), completed college or graduate degrees (97%), served full-time (75%), and were new members (69%). The majority of members completed or will complete their service (93%), had prior community leadership experience (67%), and lived in the service area (66%). Most members (75%) served in education-focused programs, with an average program size of 62. The Variance Inflation Factor ranged from 1.28 to 3.43 <10, indicating that multicollinearity is unlikely to be a concern (O’Brien, 2007).

As an initial step, analyses used t-tests to compare members who served before the pandemic (2018 and 2019 cohorts) with those who served during the pandemic (2020 and 2021 cohorts). Results indicated that member demographics were comparable across the groups, with a few differences. Specifically, members who served during the pandemic, on average, were more likely to have attained a higher formal educational degree, be younger, and be identified as White, as well as less likely to identify as Black. These differences are modest in effect sizes (Kerwin et al., 2024). Given that sample-balancing methods are likely to yield results similar to those obtained with linear regression models controlling for confounders, the study did not employ propensity score matching (Shah et al., 2005). Regarding time-variant factors, members who served during the pandemic reported lower perceived learning outcomes, higher self-confidence, lower perceived control, and lower financial stress. The t-test results are presented in Appendix C.

Table 3 presents the results of the regression analyses with moderating variables shown before the full list of control variables. Hypothesis 1 posits that members who served during the pandemic report lower perceived learning outcomes. The assessment of the hypothesis is summarized in Table 3. All else equal, serving during the pandemic was associated with perceived learning outcomes that were 0.33 standard deviations lower ($\beta = -0.33$, $SE = 0.04$, $p < 0.01$). Therefore, Hypothesis 1 is supported.

Table 3. Regression results predicting perceived learning outcomes (N=978)

IV, Moderator and Mediator	Model 1	Model 2	Model 3	Model 4
Volunteers during the Pandemic (2020-2021)	-0.334*** (0.040)	-0.974*** (0.254)	-0.744*** (0.199)	-0.394** (0.202)
Positive Role Models	0.334*** (0.038)	0.255*** (0.045)	0.332*** (0.038)	0.334*** (0.038)
Helpful Feedback	0.126*** (0.031)	0.124*** (0.031)	0.075** (0.034)	0.127*** (0.031)

Adequate Training	0.079*** (0.029)	0.082*** (0.029)	0.082*** (0.029)	0.071** (0.032)
Self-Efficacy: Confidence	0.309*** (0.030)	0.313*** (0.030)	0.310*** (0.030)	0.310*** (0.030)
Self-Efficacy: Control	0.148*** (0.028)	0.153*** (0.028)	0.146*** (0.028)	0.148*** (0.028)
Volunteer during pandemic* positive role models		0.145*** (0.055)		
Volunteer during pandemic* helpful feedback			0.100** (0.046)	
Volunteer during pandemic* adequate training				0.015 (0.046)
Control Variables				
Education: High School	0.243** (0.120)	0.257** (0.119)	0.258** (0.118)	0.243** (0.120)
Education: College	0.047 (0.054)	0.054 (0.053)	0.053 (0.053)	0.047 (0.054)
Education: Graduate (ref.)	-	-	-	-
Age	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)
Gender: Women	0.100** (0.048)	0.102** (0.047)	0.095** (0.048)	0.100** (0.048)
Gender: Minority	0.016	0.037	0.027	0.018

	(0.144)	(0.142)	(0.140)	(0.143)
Gender: Men (ref.)	-	-	-	-
Race & Ethnicity: Black	-0.005 (0.048)	-0.004 (0.048)	-0.004 (0.048)	-0.004 (0.048)
Race & Ethnicity: Hispanic	-0.011 (0.086)	-0.011 (0.085)	-0.012 (0.085)	-0.010 (0.086)
Race & Ethnicity: AAPI	-0.040 (0.106)	-0.027 (0.106)	-0.036 (0.106)	-0.038 (0.106)
Race & Ethnicity: Other	-0.138* (0.074)	-0.131* (0.073)	-0.133* (0.073)	-0.136* (0.074)
Race & Ethnicity: White (ref.)	-	-	-	-
Part-time	-0.045 (0.048)	-0.047 (0.048)	-0.050 (0.048)	-0.045 (0.048)
Returned Member	0.040 (0.043)	0.045 (0.042)	0.045 (0.043)	0.040 (0.043)
Program Size	0.040 (0.029)	0.047 (0.029)	0.039 (0.029)	0.039 (0.029)
Financial Stress	-0.034* (0.018)	-0.034* (0.018)	-0.034* (0.018)	-0.034* (0.018)
Service Stress	0.007 (0.019)	0.009 (0.019)	0.009 (0.019)	0.007 (0.019)
Completed Service	0.157* (0.085)	0.170** (0.085)	0.162* (0.086)	0.158* (0.086)

Program Focus: Econ	0.238*** (0.066)	0.253*** (0.065)	0.239*** (0.065)	0.238*** (0.066)
Program Focus: Health and Env.	0.174*** (0.066)	0.188*** (0.066)	0.181*** (0.066)	0.176*** (0.066)
Program Focus: Educ (ref.)	-	-	-	-
Prior Service Leadership Exp.	-0.040 (0.041)	-0.035 (0.041)	-0.034 (0.041)	-0.040 (0.041)
Lived in Service Area	-0.086** (0.041)	-0.094** (0.041)	-0.090** (0.041)	-0.087** (0.041)
Constant	-2.152*** (0.273)	-1.868*** (0.284)	-1.952*** (0.281)	-2.125*** (0.280)
R-squared	0.519	0.523	0.522	0.519

*Notes: Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

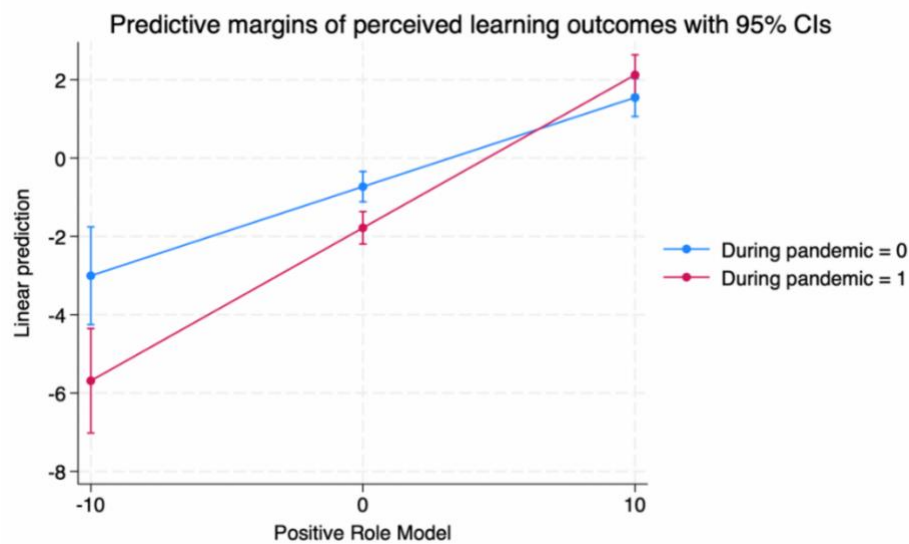
Moderating variables were sequentially added to the model. Hypotheses 2a, 2b, and 2c were represented by Model 2, Model 3, and Model 4 in Table 3. Hypothesis 2a posits that having positive role models moderates the relationship between serving during the pandemic and perceived learning outcomes. Table 3, Model 2 shows that having positive role models was associated with greater learning outcomes ($\beta = 0.26$, $SE = 0.05$, $p = 0.00 < 0.01$), and the interaction term between having positive role models and serving during the pandemic was positive and significant ($\beta = 0.15$, $SE = 0.06$, $p < 0.01$). The result suggested that while a one-level increase in perceived positive role models was associated with a 0.26 standard deviation increase in perceived learning outcomes prior to the pandemic, the association increased to 0.41 among members who served during the pandemic. Figure 1(a) presents a margins plot graphing perceived learning outcomes (y) by volunteering during the pandemic (x). The slope for the during-pandemic cohorts is steeper than that for the pre-pandemic cohorts, suggesting that the negative association between pandemic and perceived learning outcomes was attenuated by the perception of having positive roles. Therefore, hypothesis 2a is supported.

Hypothesis 2b posits that receiving useful feedback moderates the learning outcomes for members who served during the pandemic. Table 3, Model 3 reports the interaction term between receiving useful feedback and serving during the pandemic. Results showed that receiving useful

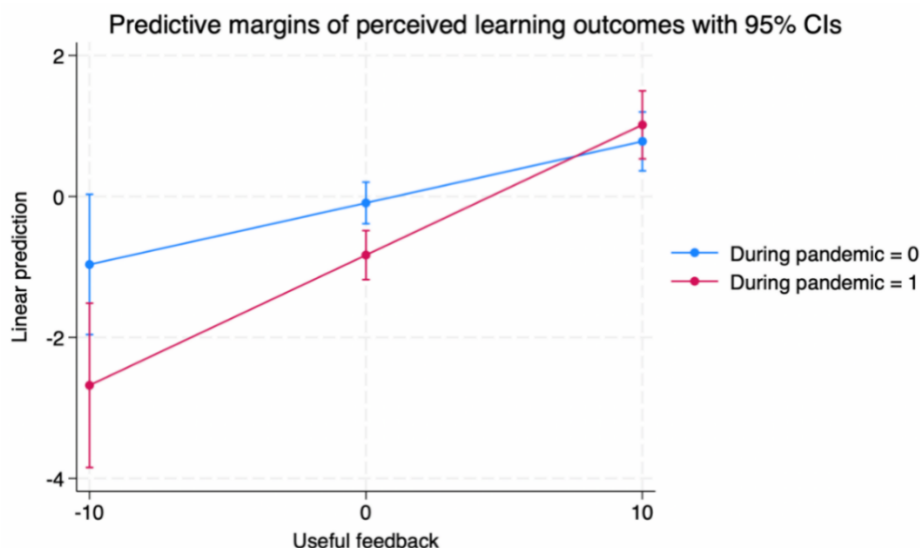
feedback was positively associated with higher levels of perceived learning outcomes ($\beta = 0.075$, $SE = 0.034$, $p < 0.05$) with a significant moderating effect ($\beta = 0.10$, $SE = 0.05$, $p < 0.05$). The result suggested that while a one-level increase in receiving useful feedback was associated with a 0.075 standard deviation increase in perceived learning outcomes prior to the pandemic, the association increased to 0.175 among members who served during the pandemic. Figure 1(b) presents this result graphically, showing that the slope for the pandemic cohort is steeper in predicting perceived learning outcomes as a function of perceived useful feedback. Therefore, hypothesis 2b is supported.

Figure 1. Margins Plot of Interaction Effects

1(a) Moderating effect of perceived positive role models



1(b) Moderating effect of perceived useful feedback



Hypothesis 2c posited that adequate training moderates the learning outcomes for members who served during the pandemic. In Table 4, Model 4, the main effect was significant ($\beta = 0.071$, $SE = 0.03$, $p < 0.05$), whereas the moderating effect was positive but insignificant ($\beta = 0.07$, $SE = 0.05$, $p > 0.1$). The results suggested that adequate training did not moderate the effect of serving during the pandemic on perceived learning outcomes. Therefore, hypothesis 2c is not supported.

Table 4. Mediation Effect of Self-Efficacy (N = 978)

	Indirect Effects	Standard Error	BootLLCI	BootULCI
Self-efficacy: Control	-0.025***	0.009	-.042	.007
Self-efficacy: Confidence	0.049***	0.014	.022	.076

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; BootLLCI = bootstrapped lower-level confidence interval; BootULCI = bootstrapped upper-level confidence interval.

Hypothesis 3 stated that Self-efficacy mediates members' perceived learning outcomes for members who served during the pandemic. The t-test results showed that members who served during the pandemic reported higher self-confidence and lower perceived control, compared to before the pandemic. Furthermore, these differences were likely attributable to the pandemic context, as analyses using t-tests to examine differences in the entry-exit matched sample showed that members' self-efficacy did not differ statistically at member entry. Appendix D details these results. The formal mediation tests, based on bootstrapped confidence intervals, are presented in Table 4. Mediating effects were significant for both dimensions of self-efficacy ($\beta = -0.025$, $SE = 0.009$, $p < 0.01$ for the sense of control dimension) and ($\beta = 0.049$, $SE = 0.014$, $p < 0.01$ for the sense of confidence dimension). The results supported hypothesis 3 and indicated that both dimensions of self-efficacy served as mediators, albeit in different directions.

Several control variables were significant across all model specifications. Specifically, Table 3, Model 1 showed that members with a high school education reported higher learning outcomes compared to those who attained graduate degrees ($\beta = 0.243$, $SE = 0.12$, $p < 0.05$). Members identified as women reported greater learning outcomes compared with men ($\beta = 0.10$, $SE = 0.048$, $p < 0.05$). Members who identified as racial minorities had lower perceived learning outcomes ($\beta = 0.14$, $SE = 0.07$, $p < 0.1$). Financial stress was associated with a lowered sense of learning ($\beta = -0.034$, $SE = 0.02$, $p < 0.1$). Members who completed service reported greater learning outcomes compared to those who left their program early ($\beta = 0.157$, $SE = 0.085$, $p < 0.1$). Moreover, members in economic-focused programs and health-related programs reported greater learning outcomes compared to those in education-focused programs ($\beta = 0.238$, $SE = 0.07$, $p < 0.01$ for economic programs and $\beta = 0.174$, $SE = 0.07$, $p < 0.01$ for health-related programs). Members who lived in the service area reported tangentially lower levels of learning outcomes compared to those who did not live in the service area ($\beta = -0.086$, $SE = 0.041$, $p < 0.05$).

Additionally, analyses have expanded to examine the possible compounded effect of having more positive role models and helpful feedback, through three-way interactions with these variables and volunteer service during the pandemic. Additional analyses also examined the potential moderating role of each aspect of self-efficacy. These analyses do not yield significant findings (analyses available upon request).

Study limitations

The study has several limitations. First, the study measures did not include volunteers' technological competency, socioeconomic status, and social and cultural capital, though these factors might influence perceived learning outcomes (Ceresola, 2018; Piatak et al., 2019). Nonetheless, given that ServeOhio provided technological training for all volunteers and 97% of the sample completed college degrees, it is reasonable to assume that almost all members had basic technological familiarity. Further, the inclusion of prior community service leadership in the models might partially account for members' professional experience and social network.

Second, the survey methods might introduce selection bias between participants and non-participants. To assess the scope of potential selection bias, analyses compared entry and exit survey measures and found that member characteristics were mostly consistent, except for a few program-related characteristics and arrangements, including time commitment, program focus, and program size. Therefore, the study results should be interpreted with caution with respect to these variables. Regarding measurement, although the predictor variable (service during the pandemic) is exogenous, the moderator, mediator, and control variables were measured via survey responses, which could introduce common source bias (CSB). Therefore, CSB does not affect the relationship between time of service and learning outcomes nor the moderating effects, but might influence the estimation of the control variables. Even so, using members' perceptions to assess their learning outcomes is a strength in the research design, as understanding volunteer experiences is important, but management practices might diverge from their perceived effectiveness (Walk et al., 2022).

Third, the study's main independent variable – volunteering during the pandemic years (member cohorts served in 2019-20 and 2020-21 years) coincided with other events in the same timeframe. The effects on perceived learning may not be attributed solely to the pandemic but also to its associated contexts. Additionally, the study uses AmeriCorps volunteers, which may not be generalizable to other volunteer groups. Receiving a stipend could influence the perception of learning outcomes via different volunteer motivations and functions (Tschirhart et al., 2001). Findings are likely to be generalizable to community service programs with similar sizes and focus areas that involve volunteers with demographic characteristics comparable to those in the study sample. Replication studies are necessary to understand the extent to which the study's findings can be applied to different settings.

Discussion and Conclusion

Understanding how to effectively support volunteer learning is an important topic in volunteer management research and practice, as learning matters to the volunteer experience and service quality (Nesbit et al., 2024; Prince & Piatak, 2022; Walk et al., 2022). During a disaster, supporting volunteer learning not only strengthens community trust but may also help volunteers recover from turbulence and trauma (Kneale et al., 2023; Nissen et al., 2023). This study contributes to volunteer management research by identifying managerial practices that nonprofit and volunteer leaders can adopt to sustain learning purposefully in emergency scenarios. As the landscape of volunteering continues to change, this study has managerial implications in light of recent trends in volunteer engagement, including online volunteering during and beyond a crisis period (Lachance, 2021; Luksyte et al., 2021).

Methodologically, the study leveraged a multi-year dataset that compares volunteer learning outcomes before and during the pandemic. The design treated the occurrence of the pandemic as exogenous (Mutch, 2020), an occurrence outside of the control of researchers that naturally separates individuals into groups based on their time of involvement – in this case, before and

after the onset of the pandemic, based on member service year cohorts. With two cohorts who volunteered before the pandemic and two cohorts impacted by it, the differences in learning outcomes are likely to be attributed to the pandemic and its associated contexts. The research design aligns with other studies on individual learning outcomes in academic and online settings (Schmidt et al., 2020; Skar et al., 2021).

This study's first main finding showed that AmeriCorps community service volunteers during the pandemic reported lower perceived learning outcomes than those who served before the pandemic, even after controlling for multiple individual, managerial, and program-related contextual factors. This result aligns with research on the pandemic's immediate impact on volunteer wellbeing, including feelings of fear and heightened health concerns (Lebenbaum et al., 2023; Sandage, 2020). More broadly, the finding echoes research on volunteer experiences during other natural disasters, such as Hurricane Katrina, where volunteers endured "shock, fatigue, anger, grief, and sleep disturbances" (Clukey, 2010, p.644). This study offers a current contribution by examining volunteers' perceived learning outcomes during the COVID-19 pandemic. A future direction could be to compare perceived learning among volunteers and non-volunteers to understand whether volunteering is a meaningful undertaking in emergency and disaster situations, supporting gains in knowledge, skills, abilities, and networks. This effort could be useful to nonprofit and community organization leaders in promoting volunteer engagement and retention.

Findings further reveal that specific managerial support practices, including positive role models and useful feedback, buffered the negative association between the pandemic and learning outcomes and became even more important for sustaining perceived learning outcomes. The findings reinforce that a substantial part of volunteer learning - gaining knowledge, skills, and networks - is an inherently social process (Chen & Bryer, 2012; Fullwood & Rowley, 2021; Velarde, 2020) and could be enhanced through strengthening social learning pathways. Research shows that emergency management personnel often lack the knowledge about how to interact with volunteers (Daddoust et al., 2021). The study points to positive role modeling and constructive feedback as effective ways to engage the volunteer workforce through learning (Lebenbaum et al., 2023). These findings align with nonprofit human resource management literature on the importance of communication and managerial support for nonprofit staff and suggest that practices should be extended to volunteers (Kuenzi et al., 2021; Sandage, 2020; Walk et al., 2022).

The study's findings emphasize the essential role of training, evidenced by its significant association with perceived learning outcomes both before and during the pandemic. However, the study did not find that training became more important during the pandemic to attenuate the negative association with perceived learning outcomes. This result is unexpected, given much evidence suggesting that disaster-related training and knowledge of volunteering tasks matter to volunteer satisfaction (Ghodsi et al., 2022; Jaime et al., 2023). The nonsignificant moderation effects might be due to insufficient time or resources to adapt volunteer training to center more on safety and disaster response training, technological training, and the provision of health and mental health resources (Nissen et al., 2023; Sun et al., 2019; Zajac et al., 2022). Further, formal, standardized organizational training may not be as personally relatable as positive role models and individualized feedback. The pandemic differed from other disasters in its stay-at-home orders that limited volunteers' social interactions and connection-building (Høgenhaven et al., 2025). As such, understanding the types and content of volunteer training to support learning during disasters will be a useful area for future research.

The study underscores self-efficacy as a psychological capital that predicts greater perceived learning outcomes both before and during the pandemic, echoing its prominent role in motivating and enhancing individual learning in many contexts (e.g., Joo et al., 2013; Zimmerman, 2000). The mediation analysis suggests how volunteers' self-efficacy might have changed during the

pandemic. More specifically, volunteers during the pandemic reported a greater sense of self-confidence in their ability to help their communities and a lower sense of control over external service environments, even though these groups' entry-level self-efficacy did not statistically differ. The significant mediating relationships indicate a complex dynamic regarding the pandemic's effect on learning through changes in self-efficacy: the pandemic might have influenced volunteers' self-efficacy, thereby eliciting different levels of perceived learning outcomes. These results should be interpreted carefully, as the pre- and during-pandemic groups' entry self-efficacy was assessed through a smaller, entry-exit-matched sample.

Nonetheless, these findings resonate with the volunteer engagement literature on other humanitarian crises and natural disasters, such as the European Refugee Crisis (Boersma et al., 2019) and the 2011 Great East Japan Earthquake (Anderson et al., 2016), both had garnered spontaneous and informal volunteer engagement, potentially driven by greater service self-efficacy reflected in a sense of responsibility to help their communities during a disaster. These results further the call to investigate the role of self-efficacy in volunteer experience and retention under organizational constraints (Harp et al., 2017). Future research should also examine other aspects of individual psychological capital, including self-efficacy, hope, resilience, and optimism, in mediating the experiences and behaviors of volunteers in disaster scenarios.

The study has important practical implications toward supporting learning during crisis and emergency situations, particularly by supporting volunteers' social learning and self-efficacy. For nonprofit and community service leaders and participants of AmeriCorps, including program directors, volunteer managers, host site staff, alumni, and volunteer peers, to see themselves as positive role models and providers of helpful feedback. Research suggests that newcomers in an organization often find multiple role models instead of relying on a "total role model" to guide their professional and identity development (Manz & Sims, 1981). The effectiveness of learning from role models depends on the availability and willingness of all organizational and community participants (Filstad, 2004). It is thus important to foster a supportive organizational culture where various organizational actors recognize that volunteers can benefit from their knowledge and expertise, role identity, and work and life experience. Volunteer leaders may support volunteer self-efficacy development by intentionally reducing their stress and burnout and by regularly communicating service accomplishments while engaging them during crises (Bandura, 1997).

Because most volunteers in the study sample transitioned from in-person to online services during the pandemic, the findings may inform volunteer management in virtual contexts. Although online volunteering offers geographical flexibility (Luksyte et al., 2021), it also poses challenges for volunteer retention due to reduced face-to-face interactions and the informal, short-term, and often episodic work arrangements commonly associated with virtual engagement (Urrea & Yoo, 2025). The study provides some evidence that managerial and social support, as well as community service self-efficacy, could mitigate the lack of social interactions that may hinder learning, a desirable goal and motivator for online volunteers (Cox et al., 2018). Future research should explore creative approaches to positive role modeling and constructive feedback in online settings to further volunteer learning.

Taken together, this study advances our understanding of how volunteer learning can be supported during a disaster period, as illustrated by the COVID-19 pandemic. By examining managerial support practices through the lens of social learning, the study identifies positive role modeling and useful feedback as evidence-based, effective practices for sustaining learning. Although the pandemic presented an unprecedented disaster scenario, marked by disrupted social interactions and connection-building, volunteer coordinators, community service leaders, and policymakers can leverage positive role modeling and feedback as essential practices, as well as enhance volunteers' self-efficacy. Future studies should examine whether these social learning-

support practices become more useful as volunteer demographics and arrangements continue to change, particularly in engaging younger volunteers and supporting informal and virtual forms of volunteerism, trends shaped by the pandemic and likely to persist beyond it.

Disclosure Statement

The author(s) declare that there are no conflicts of interest that relate to the research, authorship, or publication of this article.

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Appendix A. Examining group differences between the entry and exit samples

Variables	Entry Sample (N = 414)		Exit Sample (N = 978)		t-statistic
	Mean	S.E.	Mean	S.E.	
Education					
High School	.03	.01	.03	.01	.15
College	.77	.03	.79	.01	-.64
Graduate School	.20	.03	.18	.01	.61
Age	35.71	.83	34.30	.42	1.67
Gender					
Men	.24	.02	.22	.01	1.44
Women	.75	.02	.76	.03	-1.55
Minority	.01	.02	.03	.02	-1.32
Race & Ethnicity					
White	.62	.02	.60	.02	1.50
Black	.23	.02	.25	.01	-0.62
Hispanic	.03	.01	.04	.01	-1.55
AAPI	.02	.01	.03	.01	-1.17
Other	.10	.01	.07	.01	1.31
Part-time	.21	.02	.25	.02	-1.68**
Returned	.32	.03	.31	.02	.35
Prior Service Exp.	.64	.03	.67	.02	-1.20
Completed Service	.93	.02	.92	.01	.92
Lived in Service Area	.65	.03	.68	.02	-.83
Program Focus					
Education	.62	.02	.74	.01	-3.46***
Economic	.15	.02	.10	.01	1.72*
Health	.23	.02	.10	.01	3.8***
Program Size (Ln)	3.62	.056	3.89	.028	-3.33**

Notes: *** p<0.01, ** p<0.05, * p<0.1. Two-tailed t-test results are reported. The results do not report time-variant variables, including perceived role modeling, feedback, training, self-efficacy, and financial and service stress, given that these factors are subject to change over the course of a year of volunteering.

Appendix B. Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) Learning Outcomes	1																	
(2) Serving during Pandemic	-0.13***	1																
(3) Role Model	0.55***	0.02	1															
(4) Feedback	0.50***	0.04	0.58***	1														
(5) Training	0.43***	0.06	0.46***	0.45***	1													
(6) SE: Confidence	0.47***	0.11***	0.33***	0.30***	0.38***	1												
(7) SE: Control	0.40***	-0.06***	0.37***	0.40***	0.37***	0.18***	1											
(8) Educ: Graduate	-0.01	-0.02	-0.05*	-0.06*	0.04	0.06**	0.06*	1										
(9) Age	0.01	-0.11*	-0.08**	-0.02**	-0.08**	-0.02	0.14**	0.03	1									

*

(10) Gender: Women	0.05	0.03	0	-0.07**	-0.02	0.01	-0.05	0.05	0.07**	1									
(11) Ethnicity: White	0	0.04	0.01	-0.07**	0.02	-0.04	-	-	-	0	1								
							0.07**	0.04	0.13***										
(12) Part-time												-							
	0.01	0	0.14**	0.14**	-0.03	0.01	0.15**	0.14	0.35***	0.07	0.09	1							
							*	***		**			***						
(13) Returned Member	0.07**	0.02	0.09***	0.06*	0.02	0.06**	0.13**	-	0.17***	0.05	0.03	1							
							*	0.02		0.04									
(14) Program Size													-						
	-0.03	0.04	-	-0.06**	-0.01	0	-0.03	-	-0.01	-	0.07	1							
			0.08***					0.01		0.02	0.10	0.02	***	**					
(15) Financial Stress							-	-	-	0.05	-	-	-						
	-0.05	-0.07**	-0.03	-	-0.01	-0.05*	0.15**	-	0.03	0.03	0.23	0.06	0.12	1					
				0.10***			*	0.02	0.34***	*	***	*	***						
(16) Service Stress							-	-	-	0.10	-	-	-	1					
	-	-0.04	-	-	-	-	0.33**	0.07	0	0.16	0.33	0.05	0.15	0.16					
	0.16***		0.27***	0.22***	0.16***	0.19***	*	**	0.28***	***	***	*	***	***					

(17) Completed								-				-				0.0	1
Service	0.16***	0.07**	0.10***	0.06**	0.20***	0.18***	0.14**	0.07	-	-	0.06	0.16	0.03	0.07	0.16	5*	
						*	**	0.12***	0.01	**	***		**	***			
(18) Online Service							-				-			-	-	0.0	1
	-0.06*	0.79**	0.08**	0.03	0.04	0.13***	0.10**	0.01	-0.11***	0.00	0.05	0.06	0.02	0.01	0.06	0.0	7**
						*	*		1	*	**	**		**	5		

[illegible]

(18) Online Service						-					-		-		-	0.0	1
	-0.06*	0.79**	0.08**	0.03	0.04	0.13***	0.10**	0.01	-0.11***	0.00	0.05	0.06	0.02	0.01	0.06	0.0	7**
						*			1	*		**			**	5	

-0.06* 0.79** 0.08** 0.03 0.04 0.13*** 0.10** 0.01 -0.11*** 0.06 0.02 0.01 0.06 0.0 7**

1 *

* ** ** 5

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Appendix C. Results of t-tests comparing pandemic and pre-pandemic groups

Variables	Served before pandemic group (N = 528)		Served during pandemic group (N = 450)		t-statistic
	Mean	S.E.	Mean	S.E.	
<i>Time-variant factors:</i>					
Perceived Learning Outcomes	.210	.037	-.0155	.040	4.13***
Role Model	4.33	.028	4.35	.031	-.048
Feedback	4.04	.037	4.10	.043	-1.06
Training	4.28	.038	4.33	.041	-.89
SE: Confidence	-.047	.037	.116	.033	-3.36***
SE: Control	.117	.035	-.069	.038	3.64***
Financial Stress	3.91	.072	3.74	.052	2.45**
Service Stress	3.17	.050	3.10	.050	.95
<i>Time-invariant factors:</i>					
Education					
High School	.04	.01	.01	.005	2.79*
College	.77	.018	.81	.018	-1.52
Graduate School	.19	.015	.19	.017	.062
Age	36.58	.58	34.65	.58	2.69**
Gender					
Men	.243	.015	.213	.017	1.27
Women	.76	.019	.77	.020	.38
Minority	.021	.006	.024	.007	-.37
Race & Ethnicity					
White	.57	.017	.63	.020	-1.75*
Black	.26	.019	.21	.019	2.16**
Hispanic	.05	.009	.05	.010	-.398
AAPI	.03	.007	.04	.009	-.809
Other	.08	.012	.07	.01	.621
Part-time	.26	.019	.24	.020	.854
Returned	.296	.019	.324	.022	-.938
Prior Service Exp.	.644	.020	.697	.021	-.764
Lived in Service Area	.638	.020	.686	.021	-.575
Completed Service	.912	.012	.94	.011	-.625
Program Focus					
Education	.71	.016	.70	.019	0.61
Economic	.12	.014	.11	.013	1.77
Health and Env.	.12	.014	.13	.015	-0.62
Program Size (Ln)	3.83	.036	3.87	.038	-0.836

Notes: *** p<0.01, ** p<0.05, * p<0.1. Two-tailed t-test results reported.

Appendix D. Comparing time-variant variables at entry between the volunteers who served before and during the pandemic using entry-exit matched sample

Variables	Entry Sample for volunteers before pandemic (N =177)		Entry Sample for volunteers during pandemic (N =48)		t-statistic
	Mean	S.E.	Mean	S.E.	
Role Model	4.35	.04	4.36	.08	-.14
Feedback	3.82	.06	3.77	.06	-1.60
Training	3.67	.05	3.61	.11	.39
Self-efficacy: Confidence	.01	.04	-.03	.08	.65
Self-efficacy: Control	.02	.04	-.05	.07	.94
Financial Stress	3.89	.07	3.79	.08	.91
Service Stress	3.05	.07	3.06	.07	-.21

Notes: *** p<0.01, ** p<0.05, * p<0.1. Two-tailed t-test results reported.