

RESEARCH ARTICLE

**Connecting Workplace Attachment and Pro-Environmental Behaviors
in Zoo & Aquarium Professionals**

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Research Highlights: *A validated pilot survey of zoo employees showed a weak, positive correlation between workplace attachment (WPA) and pro-environmental behavior (PEB) at work. Operations staff showed a stronger correlation between WPA and PEB and reported lower frequencies of PEB than other departments.*

Graphical Abstract:

<i>Workplace Attachment / Pro-Environmental Behavior Spearman's Rank Correlation Coefficient by demographics</i>				
	<i>mean WPS</i>	<i>mean OCBE</i>	<i>r_s</i>	<i>n</i>
<u>Department</u>				
Animal	3.67	3.47	+ 0.11	21
Education	4.14	3.89	+ 0.37	7
Operations	3.62	2.71	+ 0.79	7
<u>Age</u>				
18-30 years	3.62	3.23	+ 0.21	12
31-45 years	3.71	3.45	+ 0.35	16
45+ years	4.15	3.63	+ 0.28	8
<u>Gender</u>				
Female	3.72	3.38	+ 0.09	21
Male	3.85	3.24	+ 0.46	17
All Respondents				
	3.75	3.34	+ 0.18	41

Abstract: *Emerging conservation psychology literature shows that there is a strong link between positive attachment to a workplace and the performance of pro-environmental behaviors by employees at work. The present study explores the validity of a pilot survey based in previous literature that explores these constructs to determine whether a relationship between the two exists among zoo and aquarium professionals. The survey was distributed to employees of the Wildlife Conservation Society's city zoos- Prospect Park, Central Park, and Queens Zoos- during the first year of the SARS-CoV-2 pandemic. Two of the survey scales used had a high internal consistency and data from these responses informed this case study to show that there is a weak, positive correlation between workplace attachment (WPA) and self-reported frequency of performance of pro-environmental behaviors (PEB) among the respondents. Isolating the responses by department revealed that staff working in Operations departments 1) exhibit lower frequencies of PEB than those in Education and Animal departments and 2) have a very strong, positive correlation between WPA and PEB. The results suggest that zoo and aquarium employees who are positively attached to their workplace are more likely to perform PEBs, especially those working in Operations departments. These findings help support that workplace practices seeking to increase workplace attachment could increase the performance of PEBs at work by all employees.*

Keywords: Sustainability, conservation psychology, green, organizational behavior, environmental behavior, management

Introduction:

Organizational members of the professional zoo and aquarium community publicly assert themselves as leaders in conservation (AZA, 2019), putting them in a unique position to influence environmental standards. Despite this public commitment to conservation, zoos and aquariums (henceforth Z/A) could do more to further their conservation missions (Maynard et al., 2020a) As employers, Z/A have the opportunity to increase employee well-being while also contributing to sustainability in the workplace. This requires a strong look at internal employee behavior and workplace leadership. This paper provides guidance for examining workplace behavior to create future behavior change amongst Z/A staff.

Human behavior is a major contributor to environmental degradation, including environmental pollution, climate change, and the loss of biodiversity (Allen et al., 2018). Pro-environmental behavior (PEB) is the conscious minimization of these negative impacts of human behavior on the natural world (Tezel & Giritli, 2019). PEB includes behaviors such as recycling, waste reduction, efficient use of energy and water, and eating a sustainable diet of locally produced or vegetarian foods. In an effort to increase the performance of these “green” or “sustainable” practices, scholars have focused their attention on identifying what influences individuals to perform PEBs.

Place attachment as a predictor of PEB is a growing area of study in conservation psychology. Place attachment is an emotional, cognitive, and/or functional bond with a place (Jorgensen & Stedman, 2001). Research in this area shows a strong link between positive attachment to a natural place and the performance of PEBs (Vaske & Kobrin, 2001). When applied to the workplace, place attachment considers the bonds resulting from the interaction between an employee and his or her organizational culture rather than just a physical place (Rioux, 2006). Evidence supports a strong link between positive attachment of employees to a workplace and their performance of PEBs, which is consistent across professions, as well as organizational and international cultures (Asfar et al., 2015; Rezapouraghdam et al., 2017; Latif & Aziz, 2018; Cheema et al., 2019). As employees spend about one-third of their time at work, PEB in the workplace can significantly contribute to minimizing the negative impact of employees’ actions on the environment (Blok et al., 2015).

The influence of workplace attachment (WPA) on PEB in organizations built on a culture and mission of wildlife conservation and sustainability is unknown. Z/A have increasing commitments to conservation and actively promote sustainable actions to their visitors and surrounding communities (Maynard et al. 2020b). However, the extent to which this organizational commitment inspires action in Z/A employees is unclear as published data are lacking. One published study of zoo Operational Division employees found that perceived organizational support (a construct that overlaps with WPA) has a significant positive effect on organizational citizenship behavior (which overlaps with some aspects of

PEB) (Anggita & Ardana, 2020). A pro-environmental work climate can predict employee motivation to engage in PEB (Hicklenton, Hine, & Loi, 2019). Additionally, research has found that WPA and employee PEB are correlated in hotel employees and nurses (Rezapouraghdam et al., 2017; Latif & Aziz, 2018; Cheema et al., 2019), both of which are occupations within the hospitality and caregiving sectors. Z/A are major visitor attractions and are responsible for the care of the animals in their collections, classifying most Z/A employees as hospitality staff or animal caregivers in some capacity. This study seeks to understand Z/A professionals' connections to the workplace and opportunities for increased pro-environmental behaviors by a) designing a pilot survey to measure these constructs and testing its application on a small group of zoo employees and b) using this data to build a case study that explores the relationship between attachment and environmental behaviors in multiple staff roles within a changing work environment due to the SARS-CoV-2 pandemic. With past research in mind, we expect a) the developed survey to be an accurate measure of WPA/PEB amongst employees and b) the surveyed Z/A professionals to exhibit a high level of PEB and for it to be strongly correlated with WPA. The results of this work build the framework for future testing of these constructs in a larger capacity, creating the potential to identify gaps in workplace sustainability, provide support for future behavior change, and offer workplace practices that can increase employee PEB within Z/A.

Methods:

Survey Scale Development

A literature review was performed to identify existing scales measuring the constructs of employee PEB and WPA. The extensive review utilized common online search engines (GoogleScholar and Web of Science) and searched keywords “pro-environmental behavior” and “workplace attachment” in order to identify studies specifically measuring both PEB and WPA. This search yielded no results. The review was expanded to include terms similar to “workplace attachment”, such as “organizational commitment”, “organizational identification”, and “workplace spirituality”. This yielded more results (n = 4).

We selected proven measurement scales with high reliability scores for measuring PEB and WPA separately. One scale to measure workplace attachment is the Workplace Spirituality Scale, based on the work of Ashmos & Duchon (2000) and operationalized by Milliman, Czaplewski, & Ferguson (2003). This scale was used in three (Asfar et al., 2015; Latif & Aziz, 2018; Rezapouraghdam et al., 2017) of the four studies on WPA/PEB that we identified and had a mean Cronbach alpha value of 0.877, supporting that this scale has high validity and is suitable for use in surveys examining the relationship between employee PEB and WPA. This scale includes some questions similar to another Workplace Attachment Scale (Rioux, 2006) from the literature review, though it has stronger validity with a higher alpha than

Rioux's (2006; $\alpha = 0.81$) and includes additional, actionable metrics about organizational practices and qualities, helpful for creating future workplace change. As such, the Milliman et al. (2003) 19-item Workplace Spirituality Scale was chosen to measure the construct of workplace attachment in this survey.

We opted to use two scales in conjunction with each other to gain an understanding of the various dimensions of employee PEB and to determine if one was more appropriate for use in future studies than the other. The Pro-Environmental Behavior Scale by Robertson & Barling (2013) is the predominant scale measuring self-reported pro-environmental behavior used in WPA/PEB literature presently ($n = 3$) and has a high validity (mean $\alpha = 0.86$, $SD = 0.008$) across these studies (Asfar et al., 2015; Cheema & Ghazali, 2019; Latif & Aziz, 2018). The high internal consistencies and low standard deviation between the studies support that this scale is highly reliable and suitable for use in future surveys on employee PEB. It asks clear, direct questions about behaviors such as recycling, composting, or energy use. The Organizational Citizenship Behaviors Toward the Environment Scale by Boiral & Paille (2012) is another highly validated ($\alpha = 0.94$) measure of self-reported pro-environmental behavior. This scale examines a wider range of proactive, pro-social behaviors than does Robertson & Barling's (2013) Pro-Environmental Behavior Scale. However, it was used in only one (Rezapouraghdam et al., 2017) of the four studies examining WPA/PEB and its validity in future surveys warranted investigation, hence its inclusion in this study

We opted to use a Likert-type, ordered categorical response scale for PEB questions. Instead of using Likert scale responses of "Strongly Disagree" to "Strongly Agree" centered around a neutral middle question, we opted to provide choices that were phrased in a more positive manner and also gauged the likelihood of performing these behaviors in the future; we chose these response types to identify behaviors employees were most open to for the purpose of creating actionable change in the workplace. The choices were (1) Never, (2) Maybe someday I'll do this, (3) I plan to do this, (4) I already do this some of the time, and (5) I do this as often as I can. The usage of these Likert-type, ordered categorical responses instead of traditional Likert scales required non-parametric statistical test measures such as Spearman's Rank Coefficient Correlation (r_s) and Kruskal-Wallis' one-way Analysis of Variance (p).

At the time of original survey development in 2019, the SARS-CoV-2 pandemic was not a thought. By the middle of 2020, the future was still uncertain but it became clear that the pandemic was not going to be relegated to a short-term lockdown and that its effects would have to be considered in this research. Some Z/A employees experienced a workplace setting change as they transitioned to remote work from home during this time, obscuring work-life boundaries. Essential workers continued to work on-site with limited staff, creating the potential for social detachment from their coworkers and a culture shift. The pandemic also prompted CDC recommendations to wear face coverings and disinfect surfaces to limit virus transmission, altering habits and creating dependency on additional products. The final

survey version added two open-ended questions to acknowledge possible bias stemming from these unpredictable lifestyle and habit changes brought on by the pandemic. The questions asked respondents to describe how COVID-19 had changed their level of WPA and their performance of PEB in the workplace, whether on-site or remote. This was necessary to reveal any bias, provide temporal context to respondents, and give a broader view of the constructs both pre- and post-COVID.

Survey Distribution

In order to measure workplace attachment and pro-environmental behaviors in Z/A employees, the Likert-type questionnaire (Table 1) was distributed via internal email to all full-time employees ($n = 188$) of the Wildlife Conservation Society's (WCS) three city zoos- Queens Zoo, Central Park Zoo, and Prospect Park Zoo. These three zoos are the smaller "sister" zoos of WCS's main park, the Bronx Zoo, and its aquarium, the New York Aquarium, and they work in conjunction with the City of New York's Parks Department. These zoos are split into three departments- Animal (consisting of zookeepers, animal supervisors, collection managers or curators), Education (made up of roles such as informal educators or volunteer coordinators), and Operations (which encompasses admissions staff, maintainers, food service, and security guards). The survey was created on GoogleForms and was left open for participation from October 15 - 23rd, 2020. All respondents gave their informed consent before the start of the survey. This questionnaire consisted of 42 items measuring the two constructs of workplace attachment (WPA) and pro-environmental behavior (PEB), as well as demographics and the self-reported effects of SARS-CoV-2 on the constructs. A total of 41 responses were returned.

Results:

Scale Validity

Milliman et al.'s (2013) Workplace Spirituality Scale and Boiral & Paille's (2012) Organizational Citizenship Behavior for the Environment Scale were both valid scales for measuring their constructs ($\alpha = 0.90$ and 0.88 , respectively). Robertson & Barling's (2013) Pro-Environmental Behavior Scale had a low internal consistency ($\alpha = 0.55$), making it an invalid scale for measuring this construct in this survey.

Zoo Employee Pro-Environmental Behavior

While Robertson & Barling's (2013) Pro-Environmental Behavior Scale was not a valid scale for measuring this construct in this survey due to its low internal consistency, it does help describe PEB in these facilities as a case study by identifying certain pro-environmental actions that are popular and those that may need to be addressed to increase their performance (Figure 1). Most participants reported recycling and using reusable eating utensils at work as often as possible (98% and 76%, respectively).

Composting, however, was lacking- only 34% of respondents already compost as often as they can at work and 17% never do this.

In response to questions from the valid OCBE Scale (Boiral & Paille, 2012) measuring employee PEB, 46% of all respondents had a median response of either (4) I already do this some of the time or (5) I do this as often as I can. When departments were isolated, the results shifted. 71% of respondents from Education departments had a median response of (4) I already do this some of the time or (5) I do this as often as I can, versus 43% for Animal departments and 29% for Operations departments. Non-parametric statistical tests suggest that there is not a departmental difference in response to these questions (Kruskal-Wallis one-way ANOVA, $p = 0.08151$), but it is very close at a significance level of $p < 0.05$. Parametric statistical tests, however, strengthen the statistical power of the data and reject the null hypothesis (one-way ANOVA, $p = 0.006901$).

Relationship between Workplace Attachment and Pro-Environmental Behavior

Workplace attachment (as measured by the WPS Scale (Milliman et al., 2013)) and employee pro-environmental behavior (as measured by the OCBE Scale (Boiral & Paille, 2012)) had a very weak positive relationship amongst all respondents (Spearman's correlation, $r_s = 0.18$).

Isolating the respondents by department yielded different results (Table 2). The correlation between WPA and PEB was very high amongst respondents from Operations departments ($r_s = 0.79$) and low amongst respondents from Animal department ($r_s = 0.11$). The Operations department had the lowest average WPA and PEB scores, compared to the Animal and Education departments.

Pandemic Effects

Regarding COVID-19's effect on workplace attachment: 21 open-ended responses were on-topic and able to be analyzed. 19% of these responses stated that COVID-19 had no effect, 29% a positive effect, and 52% a negative effect on their WPA. Four respondents expressed a feeling of disconnect with their coworkers due to social distancing or working from home.

28 responses to the open-ended question on COVID-19's effect on pro-environmental behavior were on-topic and able to be analyzed. 32% of these responses stated that COVID-19 had no effect, 14% a positive effect, and 54% identified COVID-19 as having a negative effect on their PEB. Increased waste due to personal protective equipment (PPE) and other sanitation supplies was identified by 11 respondents.

Discussion:

Research on organizational culture has taught us that people's attachment to their workplace can ultimately influence their behavior (Asfar et al., 2015; Cheema et al., 2019; Harms, 2011; Latif & Aziz, 2018; Le Roy & Rioux, 2012; Rezapourghadam et al., 2017). In light of continued environmental

degradation and anthropogenic climate change, it is timely for organizations to consider their effects on the environment. Every pro-environmental action can contribute to a more sustainable community, and engaging people where they spend a lot of time is a great opportunity for positive impact (Blok et al., 2014); workplace sustainability initiatives seeking to increase the performance of PEBs have the potential to mobilize staff through employee engagement and opportunities for participation. Literature points out that employee WPA and PEB are correlated (Rezapouraghdam et al., 2017; Latif & Aziz, 2018; Cheema et al., 2019) and that perceived organizational support has a significant positive effect on the performance of organizational citizenship behavior by staff (Anggita & Ardana, 2020). It warrants further investigation if workplace practices that promote a positive workplace culture are also able to increase the performance of PEBs. Zoos and aquariums provide a relevant community to explore this relationship due to their strong commitments to wildlife conservation and sustainability (AZA, 2017). In this small-scale, pilot study we identified a valid survey instrument for measuring these constructs and found that overall, the surveyed Z/A employees who were more attached to their organizations did have a tendency to participate more often in workplace PEBs than those who were less attached.

Pro-Environmental Behavior Scale

There are a few possible reasons for the low validity of Robertson & Barling's PEB scale (2013) in this survey: 1) Employee behaviors could be limited by workplace resources (e.g. no access to compost, inability to turn off lights in certain areas like bathrooms), by working remotely from home (e.g. always having reusable cutlery available but unable to compost at home), or by SARS-CoV-2 (e.g. increasing one's use of sterile, single-use cutlery so as not to have to disinfect a reusable set, or avoiding light switches due to the likelihood of surface-transmissible viruses). 2) One question was omitted from the original scale "I print double-sided whenever possible" as it was too esoteric and was a behavior that would only apply to administrative staff. For a scale that is already quite short at only seven items, the exclusion of one question could greatly influence the alpha value. 3) The change in answer choices may have skewed responses- we had opted for Likert-type responses of "Never", "Maybe I'll do this in the future", "I plan to do this", "I already do this some of the time" and "I do this as often as I can" over the original Likert responses Strongly Disagree to Strongly Agree. 4) The scale is too limited in scope in that it may not offer enough choices of PEBs for employees of organizations with pro-environmental missions.

Even though Robertson & Barling's (2013) Pro-Environmental Behavior Scale did not measure the construct of pro-environmental behavior well amongst these respondents and may not be appropriate for future use in examining the Z/A community, it did allow some categorical data to be gleaned from the survey scale to create a case study of the collective WCS city zoos. Recycling and usage of reusable

utensils at work were behaviors frequently used by respondents, whereas composting and turning off lights when not in use were reported to be performed less frequently. Situational factors may be responsible for these discrepancies, as resources may not be available to employees to perform the latter behaviors. Perhaps waste containers for compost are not readily available to staff or lights are not able to be controlled in certain areas. The fewer opportunities available to behave in a pro-environmental manner, the less likely employees are to perform PEBs (Blok et al., 2014). Facilities may be able to increase the performance of PEBs simply by increasing access to pro-environmental resources. 49% of respondents are future likely composters, having answered that they plan to perform or might someday perform this behavior. If these facilities were to provide the means for staff-wide composting, about half of staff that aren't already composting may choose to start.

The more proactive behaviors in the PEB Scale (Robertson & Barling, 2013) were performed by employees less frequently. "I take part in environmentally friendly programs encouraged by my workplace/coworkers" and "I suggest new practices that could improve the environmental performance of my workplace" were both reported to be performed at various levels by only about 50% of respondents. These behaviors are dictated less by mere compliance and more by employee autonomy. Research by Hicklenton et al. (2019) found employees report higher levels of autonomous pro-environmental behavior motivations in organizations with pro-environmental climates and moderate-to-high levels of autonomy support. Organizational support can lead employees to engage in organizational citizenship behaviors for the environment (or OCBE, the more proactive PEB behaviors) (Paille & Boiral, 2013). Similarly, Blok et al. (2014) identify altruistic values and openness to change as strong predictors of PEB and suggest that managers should focus on practices that increase behavioral control of employees and support employees to act pro-environmentally.

Departmental Differences

Respondents from Education departments exhibited the highest level of WPA, followed by Animal departments then Operations departments. The correlation between WPA and PEB in Animal and Education departments exhibited a weak and weakly moderate positive relationship (respectively) in this small-scale study. It is possible that a larger sample size and the utilization of parametric statistics would strengthen these correlations in future studies. However, it could be that Animal and Education staff decisions to perform PEBs are influenced more so by other factors unrelated to WPA that were not explored by this survey; these variables could include environmental awareness, education level, or other intrinsic motivators like willingness to sacrifice, moral duty, or occupational identification (Bunderson & Thomas, 2009). Research has shown that workers want to experience a sense of purpose and meaning at work, and a sense of connection with other people in their work community (Ashmos & Duchon, 2000);

perhaps Education and Animal staff seek this out more so than Operations- a question that requires further analysis. With the Operations department having the lowest WPA and PEB scores, yet the very high correlation, further research could explore the effect of interventions that increase WPA identity and pride for operations teams on their willingness to conduct pro-environmental behaviors. Education and zookeeping tend to be specialized careers, typically requiring higher formal education for relatively low pay. Research has suggested that zookeepers tend to view their work as a “calling” and that individuals who view their work in this way are more satisfied with their work and career, enjoy greater satisfaction with life, and are less likely to experience stress, depression, and conflict (Bunderson & Thomson, 2009).

Results of this survey show that the relationship between workplace attachment and pro-environmental behavior is strongly positively correlated amongst respondents from the Operations department. These staff also perform PEBs least frequently. These employees, therefore, may have the greatest potential to impact overall institutional sustainability and to focus on the motivations of these staff could help ensure the success of fledgling workplace sustainability initiatives. While correlation does not equal causation, there is a possibility that increasing WPA amongst employees who work in the Operations department may significantly contribute to an increase in their performance of PEB in the workplace. Future evaluation research could explore this potential relationship to inform strategies to engage staff in increased PEB. Current research aligns with this, supporting that employee PEB is less likely to emerge if managers do not work to increase organizational identification, a facet of workplace spirituality and WPA (Cheema et al., 2019). Encouraging managerial practices in accordance with the items from Milliman et al.’s Workplace Spirituality Scale (2013) like fostering a supportive community within the workplace, making socially responsible decisions, and strengthening employee purpose and value could increase WPA and thus PEB. When employees feel supported by their organization, they become more satisfied and committed to their workplace and are willing to engage in proactive PEBs (Paille & Boiral, 2013). Additionally, attachment to the workplace can be facilitated through respect, humanism, and integrity within the organization (Latif & Aziz, 2018).

Respondents from Education departments reported performing PEBs more often than those in Animal and Operations departments. These results could suggest that environmental awareness is a mediating factor of PEB, as we might expect WCS educators to have a more extensive understanding of these issues than other staff due to a likely personal propensity for conservation education and their job functions of teaching environmental programming to students. Other literature supports that higher levels of environmental awareness and personal norms are significantly associated with higher levels of reported PEB by employees (Tezel & Giritli, 2019; Blok et al., 2014)). Additionally, higher levels of environmental awareness can strengthen the relationship between workplace spirituality and environmental passion, which in turn increases the performance of PEBs by employees (Asfar et al.,

2015). Zoo and aquariums may be able to increase sustainability in the workplace, then, by making efforts to educate all staff on environmental issues and what they can do to mitigate this.

Industry Differences

Similar studies that surveyed the relationship between WPA and PEB ($n = 4$) used traditional Likert scale responses and measured the constructs using parametric statistical tests. For the purpose of comparison with these other studies, parametric analysis was used to calculate the Pearson correlation between WPA and PEB in this study, which was stronger ($r = 0.39$) than correlation calculated using non-parametric statistical tests ($r_s = 0.18$). Despite the small sample size of this study, the results are similar to those with more robust sample sizes (Table 3), suggesting that the results of this pilot study are valid.

Usage of parametric statistics gleaned that overall, respondents in this study have a similar correlation of WPA and PEB as respondents in other industries (Table 3). A stronger correlation between the two constructs was expected, considering that zoos and aquariums should be both a) pro-environmental work climates which can predict employee motivation to engage in PEB (Hicklenton et al., 2019) and b) focused on hospitality and caregiving, industries which tend to exhibit moderate positive correlations between WPA and PEB (Rezapouraghdam et al., 2017; Latif & Aziz, 2018; Cheema et al., 2019). The small sample size of this pilot study may not be representative of WCS or the entire Z/A community as a whole since the representation from the Animal department- a demographic that may have stronger intrinsic motivations for performing PEBs rather than external motivations based on WPA- far exceeds that from Education and Operations. Perhaps cultural differences are at play here, as respondents from the comparative studies were from Asian and European nations where environmental philosophies and practices differ in terms of individualism versus collectivism. This warrants further investigation; follow-up studies comparing survey results from employees of international facilities accredited by the AZA (Association of Zoos & Aquariums), EAZA (European Association of Zoos & Aquaria), and WAZA (World Association of Zoos & Aquariums) would provide a broader view of the effect of culture on the relationship between WPA and employee PEB at zoos and aquariums.

Effects of SARS-CoV-2

The majority of respondents stated that the global outbreak of COVID-19 had changed their feelings about their workplace and/or their decisions to act sustainably at work. The habits that individuals once had may have been temporarily blocked due to the changes brought on by the pandemic, requiring alternative habits to form (Ramkissoon, 2020). In an effort to reduce one's exposure to the SARS-CoV-2 virus, these alternative habits may have decreased attachment to the workplace and/or the performance of sustainable behaviors. Additionally, WCS zoos and its aquarium closed to the public

during the height of the pandemic and staff members were split into two groups: non-essential employees who worked remotely from home (mostly Education staff) and essential employees who continued to work at the parks in split staffs during this time (Animal and Operations staff). Remote staff may have had increased autonomy to perform sustainable behaviors in their home office. Social dynamics shifted as did organizational priorities, as WCS sought to keep its staff safe over most else. It is likely, then, that the circumstances surrounding this pandemic may have been responsible for reducing the scorings on PEB and skewed the results to a weaker correlation between WPA and PEB amongst employees or made the results of this study invalid.

Future Directions

Despite the aforementioned limitations, this pilot study does provide a good jumping-off point for future analysis of attitudes surrounding Z/A organizational culture and its effect on attachment and workplace sustainability. Subsequent studies could provide a more extensive view of these constructs by including the following recommended adjustments:

- a) Distributing the survey to a larger sample size of Z/A employees would increase the accuracy of correlations. Increasing diversity amongst respondents can be accomplished by using more inclusive methods such as providing the survey in both virtual and hard-copy form, other languages, for a longer amount of time.
- b) Reverse-scoring future surveys is recommended in order to reduce response bias.
- c) Future surveys that opt to include Robertson & Barling's PEB scale (2013) may benefit from including more modern choices in sustainable behaviors in the workplace, such as taking public transportation to work avoidance of "fast fashion" in their professional wardrobe (or making more durable uniform choices), or bringing meals to work that are low in or devoid of meat or animal byproducts.
- d) Providing numeric or interval survey responses will produce data that can be analyzed using parametric statistics so that the moderating effects of variables can be calculated. This regression modeling can give more information on the effect of WPA on PEB in order to identify specific areas for improvement and create actionable change.

The future of the SARS-CoV-2 pandemic is still uncertain. This pandemic and its effects may last for a few years. As we continue to adjust to our "new normal," the results of this study could be used as a framework for addressing workplace and sustainability concerns within zoological organizations during this tumultuous time. While it is too late to obtain baseline data on the relationship between WPA and PEB in Z/A professionals pre-COVID, revisiting this study post-pandemic may provide better data on

these constructs. However, climate change continues to be an issue even during a pandemic and perhaps organizations should not put their sustainability missions on pause during this time. It is also worth investigating other factors that may further influence the performance of PEB for Education and Animal department staff.

Conclusion:

1. The high internal consistencies of the Workplace Spirituality Scale (Milliman et al., 2003) and Organizational Citizenship Behaviors Toward the Environment Scale (Boiral & Paille, 2013) in this pilot survey support that these are valid scales for measuring workplace attachment and employee pro-environmental behavior in conjunction with each other. Their use in future surveys measuring these constructs amongst zoo and aquarium employees is recommended.
2. The results of this pilot survey of zoo employees measuring workplace attachment and pro-environmental behavior support the positive relationship between these constructs. This suggests that practices seeking to increase workplace attachment have the potential to increase the performance of pro-environmental behaviors by zoo and aquarium employees or, conversely, increasing the opportunities for performance of pro-environmental behaviors in the workplace have the potential to increase workplace attachment and employee well-being.
3. The correlation of workplace attachment and pro-environmental behavior is strongest within the Operations department, a group that also happens to perform pro-environmental behaviors less frequently than Education and Animal departments. Operations staff could have the greatest impact on zoo sustainability and should therefore be included in sustainability initiatives and a culture of workplace support.
4. The reported frequency of pro-environmental behaviors performed by respondents may decrease with increasing proactivity of the behavior or dependence on workplace resources. Recycling was reported to be performed the most frequently, followed by bringing reusable utensils, turning off lights, and composting. Highly proactive PEBs like taking part in or suggesting new environmentally friendly practices are reported to be performed the least frequently. Facilities may be able to increase the performance of PEBs simply by increasing access to pro-environmental resources and encouraging employee autonomy.
5. The majority of respondents expressed that COVID-19 has decreased their level of workplace attachment and performance of pro-environmental behaviors. This may have skewed results to show a lower correlation between WPA and PEB.

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