

Collaborative Leadership and Volunteer Engagement in Community Food-Bank Governance: The Mediating Role of Satisfaction

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ABSTRACT

This cross-sectional study investigates the relationships between collaborative leadership, volunteer satisfaction, motivation, and engagement in Ruang Pangan, a community-based food bank in Lampung, Indonesia, and discusses their implications for nonprofit governance and citizen participation in the delivery of food-security services. Data were collected from 34 active volunteers and analyzed with PLS-SEM. Results showed that volunteer engagement was positively related to organizational commitment and satisfaction, and organizational commitment was positively related to volunteer motivation. The direct relationship of collaborative leadership on engagement was not statistically significant, and neither was the relationship of motivation on engagement. However, satisfaction, but not motivation, significantly mediated the relationship between collaborative leadership and volunteer engagement. This evidence suggests that collaborative leadership may be more relevant to volunteer engagement by creating a rewarding volunteering experience, rather than simply increasing motivation. The study extends the discussion of collaborative governance by highlighting the conditions at the level of volunteers that support citizen participation in community-based public-service delivery. Results need to be interpreted with caution given the small, single-organization, cross-sectional sample

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INTRODUCTION

A food bank is a nonprofit, volunteer-based organization that recovers surplus food and redistributes it to people in need, thereby connecting food-waste reduction with food-security goals ([Starkey et al., 1999](#)). Volunteers are central to this service model because they contribute unpaid time and labor to activities that would otherwise require additional organizational resources ([Wilson, 2000](#)). In public-administration terms, community food banks can also be viewed as part of a wider public-service ecosystem in which civil-society organizations and citizens contribute to the production of socially valuable services. This is consistent with the literature on co-production, which treats citizens and communities as active contributors to service delivery rather than only as service recipients ([Bovaird, 2007](#); [Brandsen & Honingh, 2016](#)).

This governance view is significant for food security. Community food banks are a nexus of nonprofit management, civic engagement, and public problems that governments cannot solve on their own through hierarchical delivery. Their capacity to mobilise volunteers thus extends beyond internal human resource management. Volunteer continuity influences the dependability of activities related to food collection, sorting, education, and distribution and, by extension, the organization's ability to supplement public and private initiatives to alleviate food insecurity and food waste.

In such settings collaborative leadership is particularly relevant as it focuses on shared responsibility, dialogue, trust and mobilisation of dispersed resources. [Adinegoro \(2022\)](#) defines collaborative leadership in public governance as a process where leaders serve as catalysts for interdependence, facilitate sharing of information, resources and responsibilities, and bring together different actors with common public-service goals. In the Jak Lingko case, collaboration was not just a leadership style in an organization, but a governance mechanism for integrating actors and service components. The present study extends this discussion by investigating the micro-foundations of collaborative governance. In particular, we examine the relationship between collaborative leadership in a community food bank and the satisfaction, motivation, and engagement of the volunteers, whose continued participation facilitates collaborative service delivery.

Prior work has established several relevant relationships, but an important gap remains. Collaborative-leadership research has largely focused on education, health, public agencies, and inter-organizational governance, while volunteer-management research has shown that leadership behaviors, satisfaction, and motivational fit can influence volunteer commitment and continuation ([Benevene et al., 2020](#); [Fernandes & de Matos, 2023](#); [Ferreira et al., 2016](#)). Food-bank research further suggests that sustained volunteering may require internalized motives because the work is not necessarily experienced as intrinsically pleasurable ([Sheldon et al., 2022](#)). What remains less clear is whether collaborative leadership is linked to engagement directly, or whether its relationship with engagement is better understood through volunteers' experienced satisfaction and motivation. The contribution is therefore not simply a new organizational setting; it is the simultaneous test of two theoretically distinct mechanisms—satisfaction as an evaluative experience and motivation as an internalized reason for volunteering—within a citizen-supported food-security service.

Self-determination theory (SDT) provides a useful explanatory mechanism for these relationships. SDT proposes that social contexts support more autonomous and sustained behavior when they facilitate autonomy, competence, and relatedness ([Deci & Ryan, 2000](#); [Ryan & Deci, 2000](#)). Collaborative leadership can create such a context through voice, shared decision making, reliable communication, clarity of roles, and recognition. These practices could enhance satisfaction as volunteers feel supported and empowered by the organization and also increase motivation, by helping volunteers internalize the purpose and values of the activity. Engagement, however, cannot be

assumed: volunteers may be highly motivated to join for career, social or value-related reasons but their actual level of sustained engagement depends on how the organization manages their day-to-day experience.

Collaborative leadership gives volunteers opportunities to contribute ideas, understand roles, receive feedback, and experience recognition. Such practices overlap with the organizational-support, empowerment, participation-efficacy, and group-integration dimensions of volunteer satisfaction ([Galindo-Kuhn & Guzley, 2002](#); [Wong et al., 2011](#)). Leadership behaviors that support learning and participation have also been linked to volunteer satisfaction and commitment ([Benevene et al., 2020](#)). Thus, H1 is formulated: Collaborative leadership is positively associated with volunteer satisfaction.

In addition, Collaborative leadership may be associated with engagement because participation, trust, and shared responsibility can increase psychological ownership and meaningfulness. At the same time, engagement may depend on intervening experiences rather than leadership alone. Accordingly, a positive direct association is tested without assuming that it will necessarily remain significant once satisfaction and motivation are included. Thus, H2: Collaborative leadership is positively associated with volunteer engagement.

Regarding motivation, Volunteer motivation includes value, career, social, understanding, protective, and enhancement functions ([Clary et al., 1998](#); [Clary & Snyder, 1999](#)). Collaborative leadership may reinforce these functions by clarifying the social value of the work, enabling learning, strengthening social connection, and providing opportunities for meaningful contribution. Thus, H3: Collaborative leadership is positively associated with volunteer motivation.

Meanwhile, satisfaction represents volunteers' favorable evaluation of their experience, including organizational support, empowerment, and group integration. Prior volunteer research links satisfaction with continuation and commitment, while SDT suggests that supportive experiences can sustain more internalized involvement ([Ferreira et al., 2016](#); [Ryan & Deci, 2000](#); [Vecina & Chacón, 2013](#)). Thus, H4: Volunteer satisfaction is positively associated with volunteer engagement.

Regarding volunteer motivation and engagement, functional and self-determined motives can encourage volunteers to invest time and effort when the activity fulfils personally meaningful goals ([Fernandes & de Matos, 2023](#); [Sheldon et al., 2022](#)). Thus, stronger volunteer motivation is expected to be associated with stronger engagement. Thus, H5: Volunteer motivation is positively associated with volunteer engagement.

If collaborative leadership improves the quality of the volunteering experience, satisfaction may transmit its association with engagement. A second possibility is that leadership strengthens volunteers' reasons for participating, which then translates into engagement. Testing both mechanisms distinguishes an experiential pathway from a motivational pathway. Thus, H6 is formulated Volunteer satisfaction mediates the association between collaborative leadership and volunteer engagement, and H7:

Volunteer motivation mediates the association between collaborative leadership and volunteer engagement.

METHOD

This study used a cross-sectional explanatory design. Data were collected online between 16 June and 14 July 2025 using a Google Form. The questionnaire was distributed to 40 active Ruang Pangan volunteers, 34 of whom returned the questionnaire, which resulted in an 85% response rate. The respondent-profile file indicates heterogeneity in tenure. Twenty respondents (58.8%) reported involvement of more than one year; 12 (35.3%) reported 6-12 months; and two respondents chose composite tenure categories that also included “> 1 year.” The sample was also composed of 27 permanent volunteers (79.4%) and seven temporary/event-based volunteers (20.6%).

Respondents were active volunteers at the time of data collection; therefore, the sample may not yet represent individuals who had already disengaged from Ruang Pangan before the survey. However, the data from the raw profiles does confirm that temporary/event-based volunteers were not excluded. The variation in the length of time volunteers serve and their status means that respondents had varying exposure to routine leadership practices; this heterogeneity should be considered when interpreting the structural relationships.

Sample adequacy was assessed from the sensitivity perspective instead of the antiquated 10-times rule. For the most complex endogenous equation (engagement, with three predictors), only relatively large effects (approximately $f^2 = .37$) can be reliably detected at $N = 34$ with $\alpha = 0.05$ and 80% power. This finding is consistent with recent warnings that small PLS-SEM samples may be suitable for exploratory prediction but are underpowered for smaller effects ([Kock & Hadaya, 2018](#)). Thus, non-significant paths, especially motivation to engagement, are interpreted with caution, rather than as evidence of lack of substantive relationship.

The questionnaire consisted of 47 items in the original version, which were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree): collaborative leadership (10 items), volunteer motivation (17 items), volunteer satisfaction (9 items), and volunteer engagement (11 items). Collaborative leadership was adapted from [Nkengbeza et al. \(2016\)](#). Volunteer motivation was adapted from the Volunteer Functions Inventory ([Clary et al., 1998](#); [Clary & Snyder, 1999](#)). Satisfaction was adapted from the Volunteer Satisfaction Index ([Galindo-Kuhn & Guzley, 2002](#); [Wong et al., 2011](#)). Engagement was adapted from the Utrecht Work Engagement Scale ([Schaufeli et al., 2006](#)). The instruments were contextually adapted to Indonesian food-bank volunteering. The research includes descriptions of adaptation/modification of the scales but does not report a separate pilot test or formal back-translation procedure, which is noted as a measurement limitation.

Measurement-model assessment used indicator reliability, average variance extracted (AVE), Cronbach's alpha, composite reliability, the Fornell-Larcker criterion, and HTMT. Fifteen of the 47 initial indicators were removed during measurement-model refinement, leaving 32 indicators: six leadership items (X14, X21, X22, X23, X31, X33), nine motivation items (Y23, Y32, Y33, Y41, Y51, Y52, Y53, Y62, Y63), all nine satisfaction items, and eight engagement items (YYY11, YYY12, YYY13, YYY21, YYY31, YYY32, YYY33, YYY34). Items were removed when their loading was inadequate and removal improved convergent validity without eliminating the conceptual domain of the construct. The retained loadings ranged from .622 to .879, and AVE exceeded .50 for all constructs.

PLS-SEM was conducted in SmartPLS 3. The structural model was assessed using path coefficients, bootstrapped significance tests, VIF, R^2 , Q^2 , f^2 , and SRMR following [Hair et al. \(2022\)](#). No missing responses were present in the final 34-case dataset. Statistical significance of the structural path coefficients and indirect effects was assessed using a bootstrapping procedure with 5,000 resamples. Hypotheses were evaluated using a two-tailed test at the 5% significance level, with t-values greater than 1.96 and p-values below .05 considered statistically significant.

All focal constructs were measured from the same respondents in the same questionnaire. Respondents were informed that responses were confidential, which may reduce evaluation apprehension, but no dedicated statistical common-method-bias test. Common method variance, social desirability, and restricted response variance are therefore treated explicitly as limitations ([Podsakoff et al., 2003](#)).

RESULTS AND DISCUSSION

Descriptive scores were consistently high with collaborative leadership $M=4.635$, motivation $M=4.574$, satisfaction $M=4.529$ and engagement $M=4.564$. Authentic Communication/Dialogue was the strongest indicator of Leadership, Career related motives were the prominent motivation, Empowerment was the strongest satisfaction dimension and Dedication was the strongest engagement dimension. The high means and relatively compressed responses suggest a possible ceiling effect. Therefore, null structural paths do not suggest that motivation or leadership is unimportant, but rather that the association can be attenuated by limited variance.

[Table 1](#) summarises the characteristics of the respondents. The study sample was composed mainly of 20–24 years old (79.4%), female (64.7%), and student/university-student status (88.2%). Most were permanent volunteers (79.4%), had volunteered elsewhere previously (79.4%) and had been a coordinator or team leader in a volunteer organization previously (73.5%).

Table 1. Characteristics of the Respondents

Characteristic	Category	n	%
Age	< 20 years	6	17.6
Age	20–24 years	27	79.4
Age	25–29 years	1	2.9
Gender	Female	22	64.7
Gender	Male	12	35.3
Student status	Student / university student*	30	88.2
Student status	Non-student	4	11.8
Volunteer tenure	> 1 year	20	58.8
Volunteer tenure	6–12 months	12	35.3
Volunteer tenure	< 6 months and > 1 year**	1	2.9
Volunteer tenure	6–12 months and > 1 year**	1	2.9
Volunteer status	Permanent	27	79.4
Volunteer status	Temporary/event-based	7	20.6
Prior volunteer experience	Yes	27	79.4
Prior volunteer experience	No	7	20.6
Prior coordinator/team-leader experience	Yes	25	73.5
Prior coordinator/team-leader experience	No	9	26.5

Note. $N = 34$. *Student status is derived from the occupation field; one respondent selected both student and self-employed. **Two tenure responses contained more than one selected category in the source file and are reported exactly as recorded rather than recoded.

Source: processed data (2025)

Table 2 showed the acceptable reliability and convergence validity. The indicator loadings of retained items ranged from 0.622 to 0.879, and the AVE values of all constructs were above the recommended threshold of 0.50. Composite reliability and Cronbach's alpha values were also found to be above the acceptable levels indicating sufficient internal consistency. During the refinement of the measurement model, 15 of the original 47 indicators were deleted due to insufficient loadings, leaving 32 indicators for further analysis.

Table 2. Measurement Model

Construct	Cronbach's α	AVE	Composite reliability	Retained items	Loading range
Leadership	.832	.547	.878	6	0.638–0.828
Motivation	.889	.532	.910	9	0.639–0.827
Satisfaction	.929	.640	.941	9	0.727–0.879
Engagement	.874	.535	.901	8	0.622–0.822

Notes: The initial 47-item instrument was reduced to 32 retained indicators after measurement-model refinement.

Source: processed data (2025)

The discriminant validity shown in [table 3](#) was generally established. The Fornell-Larcker criterion was met for all constructs. All pairs of constructs had HTMT values below 0.90. However, the HTMT value between satisfaction and engagement was 0.863, above the more conservative 0.85 threshold but below the threshold of 0.90 and indicating that the two constructs are empirically distinguishable but are closely related.

Table 3. Discriminant Validity

Construct pair	Fornell-Larcker correlation	HTMT	Interpretation
Leadership–Satisfaction	.663	.732	Passes .85
Leadership–Engagement	.729	.838	Passes .85
Leadership–Motivation	.650	.715	Passes .85
Satisfaction–Engagement	.793	.863	Passes .90; marginal under stricter .85
Satisfaction–Motivation	.605	.645	Passes .85
Engagement–Motivation	.626	.672	Passes .85

Source: processed data (2025)

The structural VIF values in table 4 ranged from 1.000 to 2.164, indicating no critical collinearity problem among the predictor constructs. The R^2 values indicate that 44.0% of satisfaction, 42.3% of motivation, and 70.8% of engagement variance was explained by the respective structural equations. All Q^2 values were above zero, indicating predictive relevance within the sample. However, the SRMR was 0.136, which exceeds commonly used 0.08 and 0.10 reference values. Accordingly, predictive relevance and approximate model fit are reported as separate properties: the model shows in-sample explanatory/predictive relevance, while global fit is not ideal.

Table 4. Structural Model and Hypothesis Tests

Endogenous construct			Predictor			VIF		
Engagement			Collaborative leadership			2.164		
Engagement			Volunteer satisfaction			1.968		
Engagement			Volunteer motivation			1.910		
Satisfaction			Collaborative leadership			1.000		
Motivation			Collaborative leadership			1.000		
Hyp.	Path		Expected	β	t	p	f ²	Decision
H1	Leadership Satisfaction	→	+	0.663	7.672	< .001	0.785	Supported
H2	Leadership Engagement	→	+	0.315	1.527	.127	0.158	Not supported
H3	Leadership Motivation	→	+	0.650	7.516	< .001	0.733	Supported
H4	Satisfaction Engagement	→	+	0.519	2.590	.010	0.470	Supported
H5	Motivation Engagement	→	+	0.106	0.547	.585	0.020	Not supported
H6	Leadership Satisfaction Engagement	→ →	+	0.345	2.261	.024	—	Supported
H7	Leadership Motivation Engagement	→ →	+	0.069	0.513	.608	—	Not supported
Endogenous construct				R ²		Q ²		
Satisfaction				0.440		0.251		
Motivation				0.423		0.165		
Engagement				0.708		0.328		

Source: processed data (2025)

As shown in [table 4](#), the significant indirect path through satisfaction, together with the non-significant direct leadership-engagement path, is most consistently described as indirect-only mediation rather than partial mediation. Statistically, collaborative leadership was associated with engagement through satisfaction ($\beta = .345$, $p = .024$), while the direct leadership-engagement path did not reach significance ($\beta = .315$, $p = .127$). This pattern suggests that the quality of volunteers' organizational experience is a plausible mechanism linking collaborative leadership with engagement, but the cross-sectional design does not establish temporal causality.

This finding also deepens the public-governance relevance of [Adinegoro's \(2022\)](#) account of collaborative leadership. Adinegoro emphasizes collaboration as an arrangement in which leaders coordinate interdependent actors, share resources and responsibilities, and create synergy in the provision of an integrated public service. The present results suggest a complementary micro-level condition: collaborative governance depends not only on designing relationships among organizations or stakeholders, but also on maintaining a volunteer workforce that experiences participation as empowering, recognized, and satisfying. In a food bank, those volunteer experiences become part of the organizational capacity through which civil society co-produces food-security services with donors, businesses, communities, and potentially public agencies.

From a public-administration perspective, this matters because co-production relies on citizens' willingness and capacity to contribute resources to service delivery ([Bovaird, 2007](#); [Branden & Honingh, 2016](#)). Collaborative leadership may therefore function as a governance capability that converts participation into a sustainable service relationship. Open communication, shared problem solving, role clarity, recognition, and feedback are not only internal management practices; they help stabilize the human infrastructure required for community-based service provision.

Motivation showed a different pattern. Volunteers reported very high motivation ($M = 4.574$), and the respondent-profile data show that 30 of 34 respondents (88.2%) reported student/university-student status (including one respondent who also reported self-employment), which is consistent with the prominence of career, learning, networking, and friendship motives. However, motivation was not significantly associated with engagement after satisfaction and leadership were included ($\beta = .106$, $p = .585$), and the indirect path through motivation was also non-significant ($\beta = .069$, $p = .608$). This should not be taken to mean that motivation is unimportant. The high mean and small dispersion may have reduced the statistical variance available to explain engagement. The small sample had limited power to detect anything but large effects.

SDT helps to interpret this difference. Motivation may describe why volunteers enter or value the activity, while sustained engagement may be more dependent on whether the organizational context supports autonomy, competence and relatedness ([Deci & Ryan, 2000](#); [Ryan & Deci, 2000](#)). Collaborative leadership can support those needs through participation and recognition, but the results indicate that the evaluative experience of the volunteers, as measured by satisfaction, was more closely associated with engagement than their already high scores of motivations. This interpretation is in line with research suggesting that leadership behaviors can influence volunteer commitment through satisfaction ([Benevene et al., 2020](#)) and that volunteer engagement represents the alignment between motives, self-expression and the experienced service context ([Fernandes & de Matos, 2023](#)).

Discriminant validity was generally acceptable; however, the satisfaction-engagement HTMT value (0.863) lies above the stricter 0.85 criterion, but below 0.90.

Thus, the two constructs are best conceptualized as closely related but empirically distinct. This proximity is theoretically plausible as a satisfying volunteer experience and engaged participation are linked, but future studies should test the measurement structure with larger samples and alternative engagement measures.

The R^2 and Q^2 values indicate the explanatory and predictive relevance for the endogenous constructs, but they do not compensate for a poor approximate fit of the model. The SRMR of 0.136 exceeds the 0.08 and 0.10 reference values commonly used for PLS-SEM; consequently, the model should not be described as globally well-fitting or robust. This constraint on fit limits the strength of inference and the structural estimates are treated as exploratory evidence.

CONCLUSION

The study identifies a statistically significant association between collaborative leadership and volunteer engagement through satisfaction, while the direct leadership-engagement path and the motivation pathway were not significant. The pattern is consistent with indirect-only mediation by satisfaction, not partial mediation. Within this community food bank, collaborative leadership was strongly associated with both satisfaction and motivation, but satisfaction was the mechanism more closely linked to engagement.

The public-administration contribution lies in showing that collaborative governance in citizen-supported food-security services has an internal human dimension: cross-sector collaboration can only be sustained when the volunteers who enact it experience participation as supportive, empowering, and meaningful. Consequently, leaders can boost satisfaction by practicing open two-way communication, involving volunteers in problem solving and appropriate decisions, clarifying roles, providing timely information and feedback, appreciating contributions, and developing psychologically safe and meaningful activities. Public agencies and partners of community food-security initiatives should support not only the material capacity but also the volunteer-management capacity because stable co-production depends on the organisational conditions that make citizens willing to stay involved.

This study has several important limitations. First, the sample is small ($N = 34$) and drawn from one organization, so PLS estimates may be unstable and external validity is limited. Second, the survey covered volunteers who were active at the time of data collection, so former volunteers who had already disengaged were not represented; this may still create survivor-selection bias. Respondents also varied in tenure and volunteer status, which implies unequal exposure to organizational leadership and may add heterogeneity to the estimates. Third, all variables were self-reported in one cross-sectional questionnaire, creating potential common-method variance, social-desirability bias, and ceiling effects; Fourth, the research does not document a formal translation/back-translation or pilot-test procedure for the adapted scales. Fifth, the

SRMR of .136 indicates that global model fit is not ideal. Finally, the cross-sectional design does not establish temporal or causal ordering. Future research should use larger multi-organization samples, include former or short-tenure volunteers, separate predictor and outcome measurement over time, use multi-source or behavioral indicators of engagement, and replicate the model with confirmatory measurement procedures.

SUPPLEMENTARY INFORMATION

No supplementary dataset is provided with this manuscript. The article reports summary statistical outputs used to support the analysis; the underlying item-level dataset is not reproduced in the manuscript.

CONFLICT OF INTEREST

The authors declare that there are no financial, personal, or institutional relationships that could have influenced the conduct, interpretation, or reporting of this study.

AUTHOR CONTRIBUTION

JW: Conceptualization, Methodology, Investigation, Data Analysis, Project Administration, Funding Acquisition, Manuscript Drafting, Manuscript Review and Editing; FS: Investigation, Data Collection, Validation, Manuscript Review and Editing; D: Investigation, Data Collection, Validation, Manuscript Review and Editing; W: Data Collection; Manuscript Review, Editing and Translating. All authors reviewed and approved the final version of the manuscript and agreed with the conclusions presented in the study.

ETHICAL STATEMENT

Participants were provided with an introductory statement explaining the purpose of the study, the voluntary nature of participation, and the confidentiality of their responses before completing the questionnaire. Completion of the questionnaire therefore reflected their willingness to participate; however, no separate written or electronic consent confirmation was recorded in the Google Form.

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DECLARATION OF GENERATIVE AI

During manuscript preparation, generative AI was used only for language refinement and editorial assistance. It was not used to generate or analyze research data or to determine the study's findings. The authors reviewed the resulting text and remain responsible for the manuscript.

REFERENCES

- Adinegoro, K. R. R. (2022). Implementasi sikap kolaboratif dan multikultural dalam kepemimpinan pada integrasi dan penataan transportasi umum “Jak Lingko” di DKI Jakarta. *Spirit Publik: Jurnal Administrasi Publik*, 17(1), 1–11. <https://doi.org/10.20961/sp.v17i1.57666>
- Ang'ana, G. A., Ongeti, W. J., & Chiroma, J. A. (2023). Conceptualizing and measuring collaborative leadership in an organizational context. *Journal of Human Resource & Leadership*, 7(6), 101–129.
- Benevene, P., Buonomo, I., & West, M. (2020). The relationship between leadership behaviors and volunteer commitment: The role of volunteer satisfaction. *Frontiers in Psychology*, 11, 602466. <https://doi.org/10.3389/fpsyg.2020.602466>
- Bovaird, T. (2007). Beyond engagement and participation: User and community coproduction of public services. *Public Administration Review*, 67(5), 846–860. <https://doi.org/10.1111/j.1540-6210.2007.00773.x>
- Brandsen, T., & Honingh, M. (2016). Distinguishing different types of coproductions: A conceptual analysis based on the classical definitions. *Public Administration Review*, 76(3), 427–435. <https://doi.org/10.1111/puar.12465>
- Brudney, J. L., & Meijs, L. C. P. M. (2009). It ain't natural: Toward a new (natural) resource conceptualization for volunteer management. *Nonprofit and Voluntary Sector Quarterly*, 38(4), 564–581. <https://doi.org/10.1177/0899764009333828>
- Clary, E. G., & Snyder, M. (1999). The motivations to volunteer: Theoretical and practical considerations. *Current Directions in Psychological Science*, 8(5), 156–159. <https://doi.org/10.1111/1467-8721.00037>
- Clary, E. G., Snyder, M., Ridge, R. D., Copeland, J., Stukas, A. A., Haugen, J., & Miene, P. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology*, 74(6), 1516–1530. <https://doi.org/10.1037/0022-3514.74.6.1516>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Fernandes, T., & de Matos, M. A. (2023). Towards a better understanding of volunteer engagement: Self-determined motivations, self-expression needs and co-creation outcomes. *Journal of Service Theory and Practice*, 33(7), 1–27. <https://doi.org/10.1108/JSTP-09-2022-0215>
- Ferreira, M. R., Proença, J. F., & Rocha, M. (2016). Do occasional volunteers repeat their experience? *Journal of Human Values*, 22(2), 75–92.
- Galindo-Kuhn, R., & Guzley, R. M. (2002). The volunteer satisfaction index. *Journal of Social Service Research*, 28(1), 45–68. https://doi.org/10.1300/J079v28n01_03
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). SAGE.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43, 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Henseler, J., & Sarstedt, M. (2013). Goodness-of-fit indices for partial least squares path modeling. *Computational Statistics*, 28, 565–580. <https://doi.org/10.1007/s00180-012-0317-1>
- Hsieh, J. Y., & Liou, K. T. (2018). Collaborative leadership and organizational performance: Assessing the structural relation in a public service agency. *Review of Public Personnel Administration*, 38(1), 83–109. <https://doi.org/10.1177/0734371X15623619>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Nkengbeza, D., Ayehsab, P. A., & Ntibi, L. M. (2016). Collaborative leadership in skills development: Getting the fundamentals right for the success of non-governmental organizations. *Open Science Journal*, 1(3), 1–18.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and*

- Psychological Measurement*, 66(4), 701–716.
<https://doi.org/10.1177/0013164405282471>
- Sheldon, K. M., Titova, L., Osin, E., & Bratcher, B. (2022). Understanding the motivations of food bank volunteers: Applying self-determination theory and functional motivations theory. *Journal of Community & Applied Social Psychology*.
<https://doi.org/10.1002/casp.2608>
- Starkey, L. J., Gray-Donald, K., & Kuhnlein, H. V. (1999). Nutrient intake of food bank users is related to frequency of food bank use, household size, smoking, education, and country of birth. *The Journal of Nutrition*, 129(4), 883–889.
<https://doi.org/10.1093/jn/129.4.883>
- Traeger, C., Haski-Leventhal, D., & Alfes, K. (2022). Extending organizational socialization theory: Empirical evidence from volunteer work for refugees in France and Australia. *Human Relations*, 75(6), 1140–1166.
<https://doi.org/10.1177/00187267211003851>
- Tuckey, M. R., Bakker, A. B., & Dollard, M. F. (2012). Empowering leaders optimize working conditions for engagement: A multilevel study. *Journal of Occupational Health Psychology*, 17(1), 15–27. <https://doi.org/10.1037/a0025942>
- Vecina, M. L., & Chacón, F. (2013). Is engagement different from satisfaction and organizational commitment? Relations with intention to remain, psychological well-being and perceived physical health in volunteers. *Anales de Psicología*, 29(1), 225–232.
- Wilson, J. (2000). Volunteering. *Annual Review of Sociology*, 26, 215–240.
<https://doi.org/10.1146/annurev.soc.26.1.215>
- Wong, L. P., Chui, W. H., & Kwok, Y. Y. (2011). The volunteer satisfaction index: A validation study in the Chinese cultural context. *Social Indicators Research*, 104, 19–32. <https://doi.org/10.1007/s11205-010-9715-3>
- Yusro, A. Y., & Putra, M. A. (2023, February 5). Ruang Pangan: Food bank pertama di Lampung, salurkan makanan berlebih kepada yang membutuhkan. *Lampung.com*.