LADDER: A Low-Tech Game-Based Exercise to Strengthen Community Disaster Preparedness for Animals

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INTRODUCTION

Disasters threaten companion animals and livestock, impacting human safety and highlighting the need for animal inclusion in disaster planning. U.S. legislation like the PETS Act mandates emergency plans for pets and service animals. Animal welfare is vital for public safety and infrastructure, especially in rural areas where animals are economically important. Innovative training methods, such as gamification, enhance disaster preparedness. The LADDER game aims to train communities for animal-inclusive disaster response, making planning more engaging and effective.

AIMS / OBJECTIVES

To design, test, implement and assess LADDER as a tool to engage whole-community stakeholders in discussion-based exercises, ultimately improving disaster preparedness.

MATERIALS & METHODS

1. Develop the LADDER game

Multi-user interactive board game * Engages community stakeholders in discussion-based disaster preparedness (animal-focused) * Low-cost, low-tech "exercise-in-a-box" consistent with HSEEP guidelines * Provides interactive platform to evaluate local emergency operations plans * Flexible scenarios: pets or cattle, depending on jurisdiction needs.

LADDER Game Theory	Emergency Manager Translation
LADDER is a model. It is a game where the early choices can affect what happens later.	Planning Shapes Outcomes
Players must think about the benefits and costs of their options.	Balance Costs/Benefits and Understanding Community Priorities
Players deal with limited resources, which means they must choose wisely.	Resource List and Prioritization
Sometimes, players can work together, compete, or negotiate to make the best choice.	Incident Collaboration and MOUs
The game includes elements of surprise, such as sudden changes in resources or teams needing to work with neighbors.	Flexibility and Adaptive Strategies
The game is played with a team, and it is crucial to consider what happens when many players are involved.	Collective Action, Coordination, and Community Resilience

Table 1. Gaming theories used to create LADDER.

2. Piloting and refinement of LADDER
Readability tested: Flesch- Kincaid Readability
Piloted: 8 Pilot tests
Validity tested with pilots: Over 50 individuals including EM experts
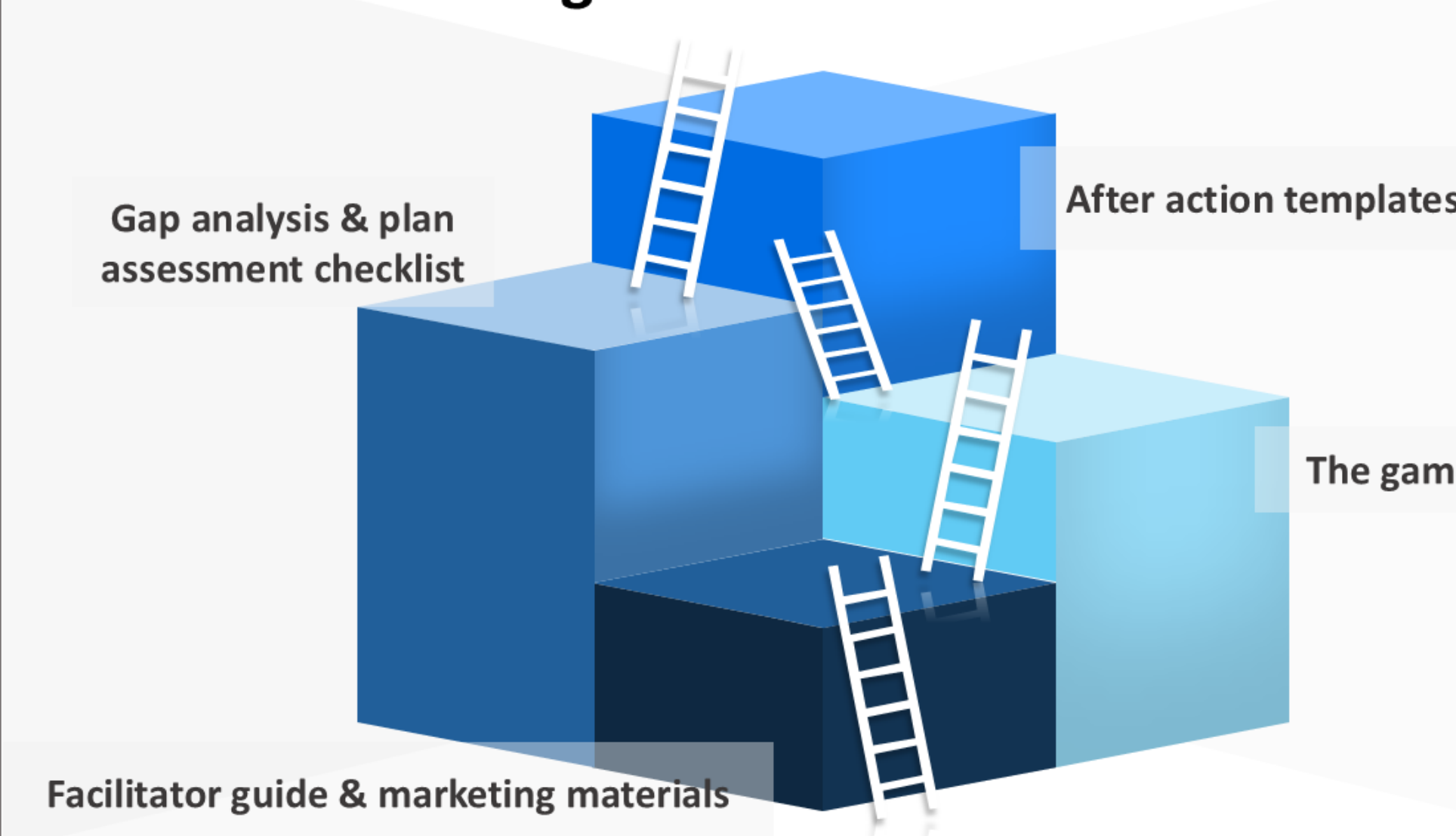
3. Evaluation of LADDER Program/Game
Exercise Evaluation Guide
Participant Feedback Report
Knowledge Test

Rise above THE CALAMITY!

RESULTS

The LADDER "Program"?

Finalized Program

01 MODULE 1 Game play — Compete to acquire & apply resources in game scenarios
02 MODULE 2 Guided discussion (hotwash) — Review local plans, policies & procedures
03 After-Action Activities — Use provided tools to guide improvement planning process
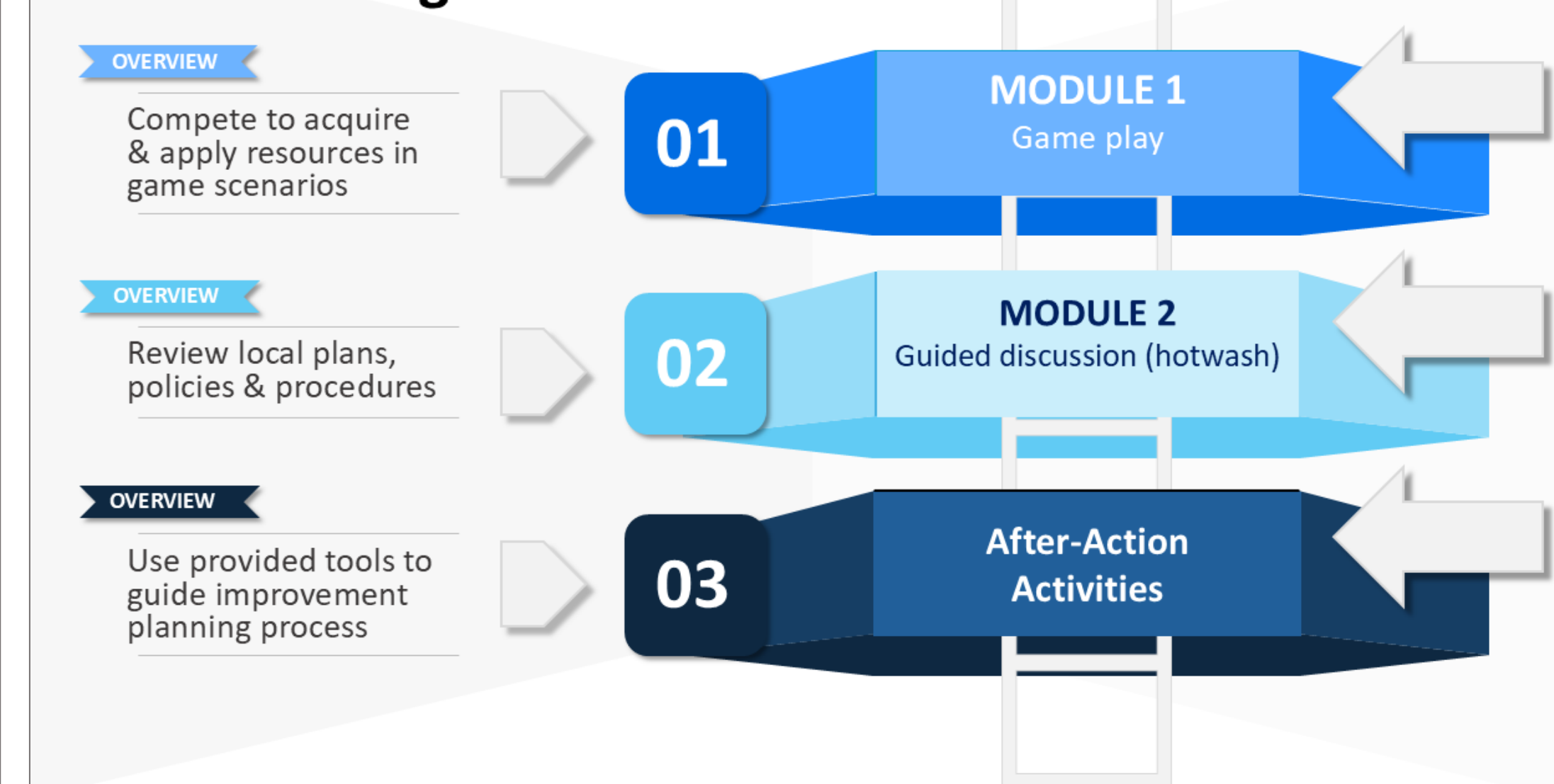
Figure 1. Elements of finalized LADDER program.

	Strongly Agree	Agree
Identify key partners for future response	90%	10%
Enhanced ability to address animal issues	90%	10%
Improved community capabilities	64.70%	35.30%
Right stakeholders	76.50%	23.50%
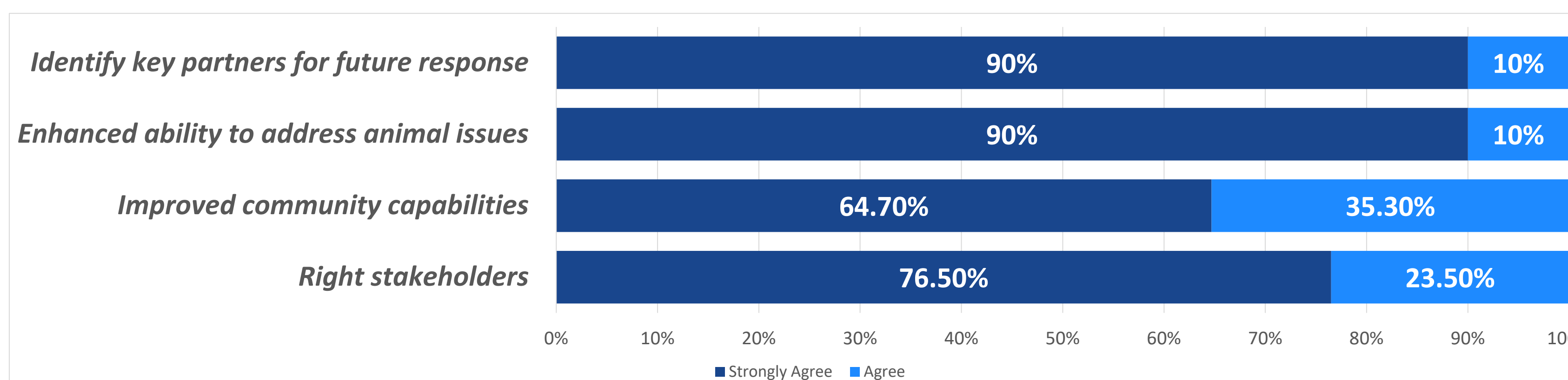
Figure 2. Evaluation of LADDER exercise (participant feedback).

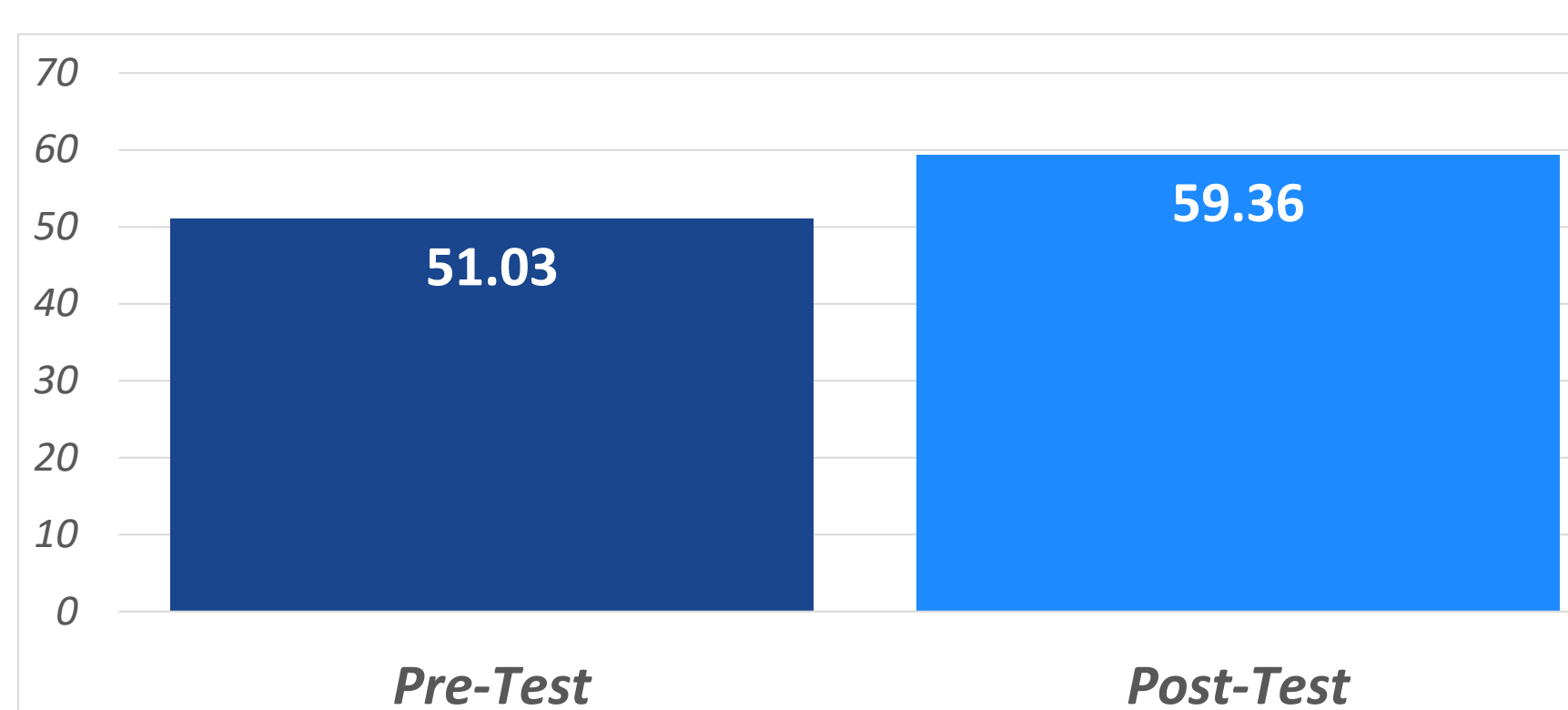| Pre-Test	Post-Test
51.03	59.36

Figure 3. Game pre- & post-program knowledge scores. There was no effect of cohort, consequently, cohorts were combined. Pre-program and post-program knowledge scores were significantly different. Pre-program (n = 45, M = 51.03, SD ≈ 2.68) and Post-program (n = 37, M = 59.36, SD ≈ 5.53) differed significantly in their scores ($p < .001$). Students scored significantly higher after completing the ½ day LADDER workshop culminating in game play.

CONCLUSIONS

Improved Knowledge: Participants showed significant gains in understanding disaster preparedness concepts after the LADDER workshop.

Positive Participant Feedback: Nearly 100% agreed that including animal issues enhanced community readiness, engagement, and stakeholder collaboration.

Policy Alignment: LADDER supports requirements of the PETS Act, ensuring that pets and service animals are incorporated into emergency planning.

Innovative Training Tool: The multi-user, low-cost, "exercise-in-a-box" board game offers emergency managers and educators a flexible, accessible way to evaluate and improve preparedness plans.

LADDER empowers communities to Engage, Prepare, and Protect — building resilience for both people and animals.

REFERENCES & ACKNOWLEDGEMENTS

LADDER A Game of Cunning & Collaboration COMMUNITY READINESS TOOL