

SafePaws

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Abstract— The interactive storytelling video game Safe Paws delivers education about safe pet interactions to children through its gameplay. The traditional educational system fails to maintain pupil attention which results in young children having trouble storing essential safety lessons. Decision-based learning forms the core of this project since it guides players through real-life experiences to learn proper pet interaction techniques. Through an immersive and interactive approach, Safe Paws fosters awareness, empathy, and informed decision-making. Animal welfare organizations support game development to establish an organized and comprehensive educational model for pet safety. Safe Paws functions in harmony with worldwide educational campaigns by using experiential learning methods to improve information retention among students. This innovative resource supports community awareness development through its accessible design which encourages responsible pet ownership. The game provides an adaptable framework which educators can utilize to teach pet safety in various educational settings of different sizes.

Keywords— *Educational Video Game, Pet Safety, Gamification, Godot Engine, Child Safety Education, Interactive Learning*

I. INTRODUCTION

A. Motivation and Context

The need to educate children about safe pet interactions has become increasingly important, particularly in Regina, Saskatchewan, where incidents of dog bites and unsafe encounters with pets have been a persistent concern [1]. Traditional pedagogical tools such as booklets, classroom lectures, and static video presentations have demonstrated limitations in sustaining engagement among early learners, often culminating in suboptimal knowledge retention. These conventional modalities lack the dynamic, experiential components necessary to foster autonomous decision-making capabilities in real-life pet encounters. As a result, children frequently remain unaware of the nuanced behavioral cues animals exhibit prior to defensive or aggressive actions, thereby exacerbating the risk of pet-related injuries. This deficit in situational awareness not only jeopardizes child safety but also imposes operational burdens on animal welfare institutions such as the Regina Humane Society, which champions responsible pet ownership and education initiatives [1].

Children enrolled in classes 1 to 5 occupy a pivotal developmental window characterized by accelerated cognitive maturation and the emergence of socio-emotional intelligence. At this juncture, interactive storytelling and experiential learning modalities are particularly efficacious. Kolb's Experiential Learning Theory posits that optimal knowledge acquisition occurs through active participation and iterative reflection [7]. At this stage, children develop foundational competencies in empathy, symbolic reasoning, and behavioral transferability, positioning them as ideal end-users for Safe Paws' decision-based gameplay architecture.

In response to these pedagogical imperatives, Safe Paws was conceptualized as an interactive, narrative-driven video game tailored to instruct children in classes 1 to 5 on the principles of safe and ethical pet engagement. By embedding decision-making nodes within realistic simulation scenarios, the game imparts actionable insights into animal behavior, mitigates exposure to hazardous situations, and cultivates empathy through affective feedback mechanisms. The system's interactive framework reinforces cognitive assimilation by providing immediate, context-sensitive feedback, thereby enhancing behavioral conditioning and long-term memory encoding.

The design and development of Safe Paws are overseen by Rebecca, a domain expert from the Regina Humane Society, whose consultation ensures alignment with evidence-based practices in pet safety education. Her domain-specific insights fortify the game's realism and pedagogical integrity, particularly in modeling pet interactions that are contextually relevant to both urban and rural environments across Saskatchewan. Additionally, the collaborative development process integrates contributions from animal behaviorists and local educators, ensuring that game scenarios reflect authentic behavioral contingencies and encourage appropriate child responses. This multi-disciplinary synergy underpins Safe Paws' mission to function as a robust, preemptive educational tool that empowers children with the procedural knowledge and ethical reasoning needed for safe animal interactions.

B. Objectives

Safe Paws delivers pet safety education to children to minimize the number of injuries they sustain while interacting with animals. The game puts priority on teaching children appropriate conduct through educational programs before they adopt new behaviors for interacting with animals. The program functions as an anticipatory protective measure which prevents children from experiencing dog bites as well as scratches and aggressive behavior caused by misperception of dog actions.

Through the game framework the developers support two United Nations Sustainable Development Goals Namely Quality Education (SDG 4) and Life on Land (SDG 15) [2]. Interactive decision-making experiences included in real-life scenario modules form the basis of quality education delivery to students in grades 1 through 5. The skills for safe behavior comprise dog handling with a leash and responding to lose animals and recognizing warning signs of danger in animals which serve as fundamental abilities to conduct ourselves in a secure manner.

The game supports SDG 15 by teaching students to develop both ethical attitudes toward domestic animals and better pet care skills through stress signal identification. The development of Safe Paws resulted from a collaboration between educators and game designers and representatives from the Regina Humane Society as well as utilizing visual aids and sound effects alongside decision-based storytelling to both engage students and help them remember new information.

II. LITERATURE REVIEW

A. Comparative Analysis

In developing Safe Paws, careful consideration was given to identifying relevant educational games that address animal interaction and safety. While several educational games exist, JumpStart Pet Rescue and Animal Jam Classic were selected for comparison due to their thematic relevance, educational objectives, and interactive elements [3][4]. These two games align closely with Safe Paws' goal of combining education with engaging gameplay.

The researchers chose JumpStart Pet Rescue because it teaches pet care skills through interactive tasks[5]. Animal Jam Classic was selected for its focus on animal behavior and conservation through its wildlife and environmental themes. While both incorporate educational components to promote responsible animal interaction, they do not address pre-adoption pet safety comprehensively. Furthermore, neither game offers an offline mode or region-specific content, such as localized scenarios relevant to Saskatchewan communities. Safe Paws bridges these gaps through offline functionality, context-sensitive guidance, and regionally informed scenarios that align with real-world behavior expectations.

To further ground its educational model, Safe Paws also draws on foundational principles of educational game design theory. As noted by James Paul Gee, good learning games use problem-solving, feedback, and situated learning to deepen

player engagement and knowledge retention[8]. The decision-making architecture and real-time feedback in Safe Paws are aligned with Gee's design principles to enhance experiential learning

B. Comparison Table

Features	Games		
	<i>Safe paws (Our Games)</i>	<i>Jumpstart pet rescue</i>	<i>Animal Jam Classic</i>
Target Audience	Children (Classes 1 to 5), families in Regina	Preschoolers (3-6 years)	General audience (7-12 years)
Primary Learning Method	Interactive storytelling & decision-making	Mini games & interactive tasks	Open-world exploration & learning activities
Focus Area	Pre-adoption pet safety education	General pet care & early learning	Wildlife education & conservation awareness
Engagement Level	High – scenario-driven learning	Moderate – task-based gameplay	High – exploration-based multiplayer world
Realism in Pet Interactions	High – real-world scenarios and guided responses	Moderate – focuses on virtual pet care	Low – fantasy animals, minimal real-world pet interactions
Gamification Elements	Strong – story progression, rewards for safe choices	Moderate – progression through tasks	Strong – badges, achievements, and in-game economy
Accessibility	PC Game (not a mobile game)	Nintendo Wii console game	Online multiplayer game
Educational Impact	High – teaches real-world pet safety before adoption	Moderate – introduces pet responsibility but lacks decision-making depth	Moderate – promotes wildlife awareness but lacks structured safety education

C. Key Insights and Conclusion

The educational technology tool Safe Paws distinguishes itself through its approach to fill a gap in pre-adoptive training for pet security measures. Safe Paws adopts a different game

design than JumpStart Pet Rescue because it trains players through real-world scenarios that ask them to choose their next steps before meeting pets. Through its decision-based system students receive real-time feedback which strengthens proper pet handling skills while teaching them which actions are dangerous thus resulting in better pet handling knowledge. Although Animal Jam Classic delivers great content related to wildlife awareness it has no structured system to teach children important pet safety skills. The platform Safe Paws addresses this shortcoming through its gameplay system which merges interactive activities with actual safety techniques that help children handle pets in their regular environment.

Safe Paws combines interactive tales with instructional material through an innovative approach which lets users have both interesting moments and educational encounters. The game succeeds as an essential educational tool through its entertaining approach to delivering critical information about pet safety to families and community organizations while serving educational needs of schools.

III. METHODOLOGY

A. Overview of the game

Safe Paws offers a two-dimensional educational game which teaches kids proper pet interaction training by engaging them with story-based activities. Following the approach of Zoe and Molly Internet Safety Game [6] Safe Paws shows realistic situations in which users need to choose properly to develop proper pet habits. The game supports students from classes 1 to 5 through education that aids them for real-life pet encounters while promoting responsible conduct with animals.

The game display opts for straightforward design instead of complicated presentation methods. The game design combines basic background elements with audio feedback features that help users focus on critical gameplay areas. The game presents safety lesson concepts at each decision point which children can use after leaving the virtual world. The developers have created and assessed the initial chapter of the game as the base to create future game modules.

B. Development Framework

Safe Paws is developed using the Godot Engine, an open-source and lightweight framework optimized for 2D game development. The Godot Engine was selected due to its flexibility, efficiency, and suitability for interactive storytelling mechanics. The key features that make Godot ideal for Safe Paws include:

1. Efficient 2D Optimization for smooth performance across devices.
2. Multiple-choice interaction mechanics to support decision-based learning.
3. Offline functionality to ensure accessibility in rural Saskatchewan areas where internet connectivity may be limited.

4. Cross-platform compatibility, allowing Safe Paws to be deployed on tablets and desktop systems.

Godot's scripting language, GD Script, enables flexible programming for dynamic interactions, ensuring that feedback mechanisms within the game respond promptly to player choices.

C. Game Development Process

The development of Safe Paws followed a structured learning-to-implementation process. Since the development team was new to Godot Engine and its scripting language Gd script, they initially created a simple Mario-inspired platformer game by following YouTube tutorials. This initial project provided valuable hands-on experience in Godot's interface, scene structure, and scripting principles. Completing this small project successfully enabled the team to confidently move forward with Safe Paws' development.

The initial version of Chapter 1 underwent internal and informal testing. Feedback highlighted the need for simplified text prompts and stronger sound feedback cues. Based on these insights, the development team refined the UI, adjusted timing of interaction feedback, and restructured decision options to be more age appropriate.

D. Game Design and Scenario Development

Although the full version of Safe Paws is designed to include five distinct chapters, only Chapter 1—"Meeting a Dog on a Leash"—has been implemented at this stage.

1. Introduction of the Scenario – Players are introduced to a realistic encounter with a dog or cat.
2. Decision Points – Players are presented with multiple options to determine the best course of action.
3. Immediate Feedback – Correct decisions are reinforced with positive cues, while incorrect choices prompt educational explanations to improve learning outcomes.
4. Progression and Rewards – Players progress by successfully demonstrating safe behaviors, earning virtual rewards for completing chapters effectively.

1) Dog Safety Chapters

a) Meeting a Dog on a Leash

Players are taught to ask permission before petting, offer a fist for sniffing, and to pet the dog under the chin for safety.

Feedback ensures players understand the importance of respectful and calm behavior when approaching a leashed dog.

b) Meeting a Stray Dog on the Street

Players learn to stand like a tree (hands closed, legs together, no eye contact) if approached by a stray dog.

In case of physical contact, players are instructed to lie like a log (face down, protecting the neck).

c) Hearing a Dog Barking Behind a Fence

Players are guided to avoid the fence, refrain from teasing the dog, and walk away calmly to prevent provocation.

2) Cat Safety Chapters

a) Seeing a Hurt Cat

Players are encouraged to maintain a safe distance and seek help by contacting Animal Protection Officers.

b) Encountering a Stray Cat with Kittens

Players learn not to approach or attempt to pick up the cat or its kittens. Instead, they are advised to call local authorities for assistance.



Fig1: Meeting the dog



Fig2: First interaction when the owner the player to play with pet

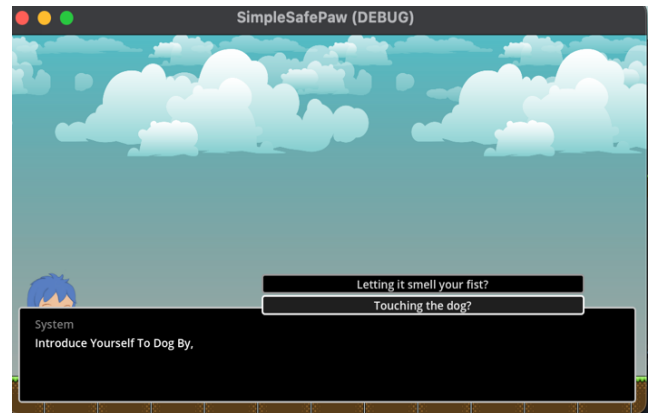


Fig3: Next interaction

IV. LEARNING OUTCOMES AND REWARD SYSTEM

A. Example Scenerio

The game awards virtual coins to players who make appropriate choices within the game. Through earning virtual coins players will gain access to pet-related rewards which include educational resources and products provided by the Regina Humane Society thus establishing direct links between game information and actual world effects.

Players will experience encountering a dog brought to the scenario with its owner restraining it by a leash. The player needs to decide ways to interact and responsible manner what actions to perform when encountering the dog. Players achieve either rewards or no rewards based on the successful completion of their chosen game tasks.

1. Incorrect Choice (No Reward):

- Player Action: The player approaches the dog without asking the owner for permission and tries to pet it immediately.
- Immediate Feedback: The dog barks loudly, signaling discomfort, and the feedback explains that such actions can lead to stress or aggression from the dog.
- Outcome: The player does not earn any virtual coins, and the feedback emphasizes the importance of respecting personal space and always asking for permission before interacting with pets.

2. Correct Choice (Reward Earned):

- Player Action: The player politely asks the owner for permission to pet the dog. Once permission is granted, they proceed to pet the dog gently under the chin, avoiding any sensitive areas like the dog's head.
- Immediate Feedback: The dog responds calmly, with positive feedback reinforcing that the safe, respectful interaction is correct.

- **Coins Earned:** The player earns virtual coins as a reward for making the correct decision. These coins can be accumulated over time as the player makes additional safe choices in future scenarios.

B. Examples of Learning outcomes

If a player accumulates 100 coins by successfully navigating several scenarios, such as meeting a dog on a leash or helping a stray cat, they could redeem their coins for an educational pet safety book or an interactive pet toy. This real-world reward not only reinforces the concepts learned in the game but also encourages the player to further explore pet care and safety. The coin reward system encourages players to consistently make safe decisions when interacting with pets. By linking in-game decisions to tangible rewards, children are motivated to apply the lessons they learn in the game to real-life situations, enhancing their understanding of pet safety. Furthermore, the rewards system adds an element of gamification, which helps keep children engaged and motivates them to continue playing, repeating scenarios, and reinforcing safe behaviors.

This system also fosters community involvement by partnering with the Regina Humane Society. By redeeming coins for real-world pet products or contributing to animal welfare causes, players develop a sense of responsibility toward animals, making the game not only an educational tool but also a way to engage with and support local animal welfare efforts. The integration of a virtual coin reward system in Safe Paws effectively combines education and motivation. By rewarding children for making safe choices, the game encourages repeated engagement and reinforces important lessons about responsible pet interactions. The ability to redeem coins for real-world pet products enhances the educational experience, helping children connect virtual learning to tangible actions. This system not only promotes pet safety but also nurtures a deeper sense of responsibility and involvement in the welfare of animals

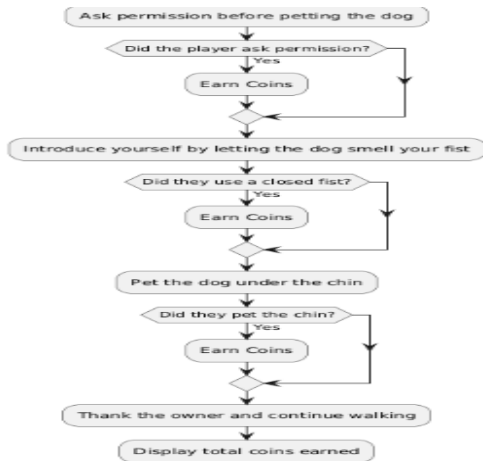


Fig4: Dog Interaction Game: Earn Coins by Making the Right Choices

V. RESULTS& DISCUSSION

The feedback received during the development of Chapter 1 of Safe Paws was positive and constructive. Although formal user testing has not yet been conducted, the game's direction and content have been reviewed and approved by Rebecca Carson, Manager of Education and Outreach at the Regina Humane Society [9]. Her continuous involvement has helped validate the educational approach and design elements used in the current version of the game. The Regina Humane Society's support reinforces the project's relevance and potential community impact.

A. Discussion Timeline with Regina Humane Society

Date	Discussion Summary
1 st Feb	Initial discussion with Rebecca Carson about the scope of the project. She provided guided documents and suggestions for how children typically interact with pets.
15 th Feb	A follow-up conversation took place to explore how a coin-based reward system could be integrated into the game for correct and incorrect choices.
6 th March	Rebecca recommended refining the coin logic: incorrect answers should receive 0 coins, and correct answers should earn 10 coins.
20 th March	The development team shared updates confirming that the revised coin system had been implemented as per Rebecca's recommendation. Moreover, Rebecca was updated on the achievements of the Minimum Viable Product (MVP), which included the coin system, AI-generated chapter intro video, and character voiceover.
3 rd April	Rebecca provided narrative suggestions, including having the main character visit a Humane Society instead of a grocery store, and including a dog owner in key scenes.

VI. DRAWBACKS

While Safe Paws effectively delivers educational value, certain limitations may impact its overall engagement and accessibility. The game's simplistic visual design may be less appealing to children familiar with graphically advanced commercial games. Its decision-driven narrative structure may not align with the preferences of players seeking fast-paced, action-focused experiences. The reliance on static animations in select scenes may limit immersion, reducing the game's visual impact. Furthermore, the content's scope is currently limited, lacking comprehensive coverage of diverse pet behaviors and emergency response scenarios. Additionally, the game's educational effectiveness is contingent on players' active engagement, which may require parental involvement to

reinforce learning for younger audiences. Despite these limitations, Safe Paws remains a valuable tool for fostering responsible pet interactions through interactive storytelling.

VII. FUTURE OPPORTUNITIES

A. *Future Opportunities with Regina Humane Society and Game Development*

Looking ahead, a strong opportunity exists for continued collaboration with the Regina Humane Society. Should they provide funding or resources, Safe Paws could significantly benefit from enhanced animation quality and improvements in other key parts of the game. With access to additional support, such as a dedicated team, the game could expand its visual and auditory appeal, incorporating more dynamic and realistic animations of pets and their interactions with children. This would elevate the overall gaming experience and make the educational content more engaging for players. The additional resources could also enable the development of more advanced game mechanics, interactive scenarios, and refined feedback systems, further strengthening the game's educational impact.

Another crucial aspect to consider is the ongoing optimization of voice effects and content. Since content is king in any educational tool, ensuring that voice acting is clear, professional, and age-appropriate is essential for maintaining player engagement. As the game evolves, continuous work will be needed to improve the quality of voice effects, making sure they align with the tone and goals of the game. Additionally, refining the content itself—ensuring that it remains relevant, educational, and culturally sensitive—is key to keeping players informed and engaged. With more resources, Safe Paws can enhance both the technical aspects and the content, providing children with a more immersive, high-quality learning experience while also ensuring the game is scalable and adaptable for future educational needs.

For papers published in translation journals, please give the English citation first, followed by the original foreign-language citation [6].

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