

## Chapter 19

# Handheld Games: Can Virtual Pets Make a Difference?

**Yueh-Feng Lily Tsai**  
*Simon Fraser University, Canada*

**David Kaufman**  
*Simon Fraser University, Canada*

### ABSTRACT

*Children who care for real pet animals have shown higher levels of empathy and positive attitudes toward the humane treatment of animals. However, only a limited number of studies have examined whether caring for a virtual pet would have similar associations. This study investigated the question of whether a handheld virtual pet videogame can improve children's empathy and humane attitudes. The results showed that after playing Nintendogs® for three weeks, participants showed higher levels of empathy on the Bryant Empathy Index, and had higher levels of humane attitudes on the Intermediate Attitude Scale, compared to their scores before they played.*

### INTRODUCTION

With the growing popularity and sophistication of computer-based games including handheld portable units, it now becomes increasingly important to determine the socio-emotional effects of computer game play, including whether children can develop empathy and positive humane attitudes toward animals through interacting with, and responding to, virtual pets.

Building on evidence in the literature to suggest that empathy and humane attitudes can be enhanced

through caring for pets, this research study investigated the potential of a handheld virtual pet video game to improve children's empathy and their humane attitudes toward real animals. For this research, the game software *Nintendogs*® was used as the object of study. The *Nintendogs* game cartridges and *Nintendo DS*® systems were bought at retail cost without corporate sponsorship from Nintendo. We hope that the understanding gained through this study about children's interaction with virtual pets may be applied to developing new technology to facilitate social and emotional development.

DOI: 10.4018/978-1-61520-731-2.ch019

## LITERATURE REVIEW

Empathy encompasses a broad range of concepts. The Canadian Oxford Dictionary states that empathy is “the power of identifying oneself mentally with and so fully comprehending a person or object of contemplation” (Barber, 1998). In general, the process of empathy includes the empathizer and the empathized. The empathized often refers to another human being, but it can also refer to other objects such as art (Lipps in Goldstein & Michaels, 1985) and animals (Buber, 1948).

### Cognitive and Emotional Influences of Empathy

Since 1897, when the German philosopher Theodor Lipps first introduced the idea of empathy, the concept has gone through various constructs as scholars and philosophers have defined it in different ways (Goldstein & Michaels, 1985). Recent theories of children’s empathic development have generally supported a definition of empathy that includes both cognitive empathy and emotional empathy. Two important models, one from Hoffman (1982, 1987, 2000) and another from Feshbach (1982) have provided important explanations about how emotional and cognitive elements may be interrelated and influence children’s empathic development.

According to Hoffman, children’s empathic development is influenced by their cognitive and emotional development, and empathic distress (i.e., affective response to another person’s distress) may be the key factor which joins the two domains (Hoffman, 1987). Based on the concept of empathic distress, Hoffman introduced five modes of empathic arousal: primary circular reaction, mimicry, conditioning, direct association, language-mediated association, and role-taking (Hoffman, 1987). The first three modes are emotional responses, and the last two require greater cognitive engagement. Language-mediated association, for example, requires the empathizer to

connect his own experience with the empathized person’s distress cues cognitively, through language. In role-taking, the empathizer is required to put himself in another’s situation cognitively, and imagine what those circumstances might feel like. Hoffman further suggested that empathy can be encouraged and enhanced through training and guidance including encouraging children to experience a range of emotional experiences by engaging in different situations such as through pretend play and games. He further added that children’s role-taking abilities should be enhanced by providing them with opportunities to share life experiences and improve their language and communication abilities (Hoffman, 2000).

Feshbach (1978), like Hoffman, believed that emotional and cognitive factors influenced children’s development of empathy, and that empathy consists of three components. The first two components require cognitive abilities to receive emotional cues, identify others’ emotions, and take the role or perspective of others. The last component is emotional responsiveness, which is the capability to experience emotion. Feshbach (1982) stated that, “the observing child must be able to experience the emotion that is being witnessed in order to be able to share that emotion” (p.320). She also indicated that empathy can be developed through training. Feshbach’s (1979) empathy training addressed two important aspects: affective-cognitive training and cognitive training. Affective-cognitive training focuses on training children’s ability in affect identification, perspective-taking, and emotional responsiveness; its purpose is to encourage children to explore different emotional experiences as well as freely express and discuss emotions. Cognitive training is focused on “non-emotional aspects of social interaction, discrimination of social cues that contain information about the thoughts, intentions, and probable future behavior of others” (p.240). Unlike affective-cognitive training, discussion “centers on intentionality, motivation, and problem solving rather than on emotion” (p. 240). There-

8 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/handheld-games-can-virtual-pets/40889](http://www.igi-global.com/chapter/handheld-games-can-virtual-pets/40889)

## Related Content

---

### Evolving Bots' AI in Unreal™

Antonio M. Mora-García and Juan Julián Merelo-Guervós (2012). *Algorithmic and Architectural Gaming Design: Implementation and Development* (pp. 134-157).

[www.irma-international.org/chapter/evolving-bots-unreal/66321](http://www.irma-international.org/chapter/evolving-bots-unreal/66321)

### Navigating the Global Workforce Through Workplace Learning and Professional Development: Game-Derived Skills as a New Foundational Layer

Christopher H. Slotboom (2026). *Gaming, Wellness, and Technology in the Bold Global Workforce* (pp. 59-130).

[www.irma-international.org/chapter/navigating-the-global-workforce-through-workplace-learning-and-professional-development/383897](http://www.irma-international.org/chapter/navigating-the-global-workforce-through-workplace-learning-and-professional-development/383897)

### Multi-Modal Investigations of Relationship Play in Virtual Worlds

Yasmin B. Kafai, Deborah Fields and Kristin A. Searle (2010). *International Journal of Gaming and Computer-Mediated Simulations* (pp. 40-48).

[www.irma-international.org/article/multi-modal-investigations-relationship-play/40938](http://www.irma-international.org/article/multi-modal-investigations-relationship-play/40938)

### The Role of Gamification and Evolutionary Computation in the Provision of Self-Guided Speech Therapy

Conor Higgins, Áine Kearns, Conor Ryan and Mikael Fernstrom (2016). *Handbook of Research on Holistic Perspectives in Gamification for Clinical Practice* (pp. 158-182).

[www.irma-international.org/chapter/the-role-of-gamification-and-evolutionary-computation-in-the-provision-of-self-guided-speech-therapy/137827](http://www.irma-international.org/chapter/the-role-of-gamification-and-evolutionary-computation-in-the-provision-of-self-guided-speech-therapy/137827)

### Kinesthetic Communication for Learning in Immersive Worlds

Christopher Ault, Ann Warner-Ault, Ursula Wolz and Teresa Marrin Nakra (2010). *Serious Game Design and Development: Technologies for Training and Learning* (pp. 102-116).

[www.irma-international.org/chapter/kinesthetic-communication-learning-immersive-worlds/41069](http://www.irma-international.org/chapter/kinesthetic-communication-learning-immersive-worlds/41069)