

# Impact of a Digital Pets' Appearance on Emotional Attachment

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## Introduction

Digital Pets are defined as an artificially created companion for a human to interact with, most times via a video game or a dedicated physical device.

Although it is considered possible to develop digital pets that can replace or substitute the emotional bond with real pets (1) (2), only little is known about how these creatures can be designed to offer the same companionship and attachment as a real pet.

Three main attributes that contribute to Emotional Attachment towards Digital Pets emerged from recent research: Interaction, Behavior, and Appearance (1)(3). While the effects of Interaction and Behavior have already been explored further in recent studies (4)(5), there is a lack of data on how a Digital Pet's appearance impacts Emotional Attachment.

## Goal

Explore the influence of specific elements of a Digital Pet's Appearance on Emotional Attachment

### First Objective

Examine **if** specific elements of a Digital Pet's Appearance have an impact on Emotional Attachment

### Second Objective

Explore **how** the elements of a Digital Pet's Appearance affect Emotional Attachment

## Background

Digital Pets evolved drastically since the introduction of the first widely popular Digital Pet "Tamagotchi" in 1996 and with them their purpose and significance. What was once created with the intent to prepare young people for the hardships of parenthood is now considered to have potential to bring the same benefits for humans as real pets do.



The establishment of an emotional bond is important for their use in Educational Games and for their use as a substitute of real pets. Due to the rising interest in Digital Pets that simulate real pets it becomes increasingly more important to deepen the understanding of the impact of a Digital Pet's Appearance.

## Methodology and Results

### Relevant Literature

Emotional Attachment towards Digital Pets was found to be impacted by three attributes: Interaction, Behaviour and Appearance(1)(3).

Literature revealed the following influences that Appearances could have on Emotional Attachment:  
- Appeal/Attraction  
- Companionship  
- Individual Preference  
- Association  
- Visual Qualities

### List of Criteria

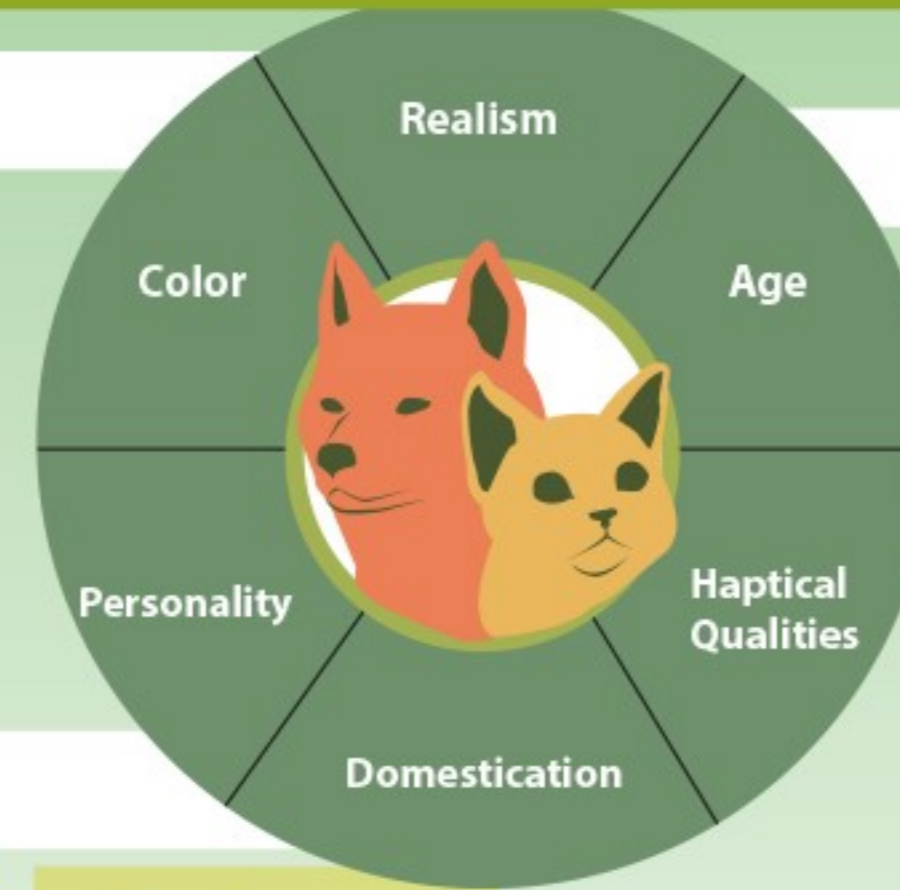
The evaluation of this research focused on the Visual Qualities. These were defined according to the research material and summarized into the following list of criteria:  
- Realism  
- Color  
- Haptical Qualities  
- Personality  
- Age  
- Domestication

### Visual Material

For each element on the list of criteria, a set of images of virtual animals was prepared. The requirements for the images varied. Images were mostly created within the videogame "The Sims 4: Cats and Dogs", due to the ability to customize the virtual animal's appearance.

### Survey

A survey with 70 participants of all ages and with varying experiences with Digital Pets was conducted. Each element had a set of questions.



## Evaluation

The results strongly suggest that the realism of a Digital Pet's appearance contributes to their perceived companionship as well as affecting their appeal. In addition, natural colors are preferred over unnatural ones and the higher indication of fur is influencing Emotional Attachment through the attractiveness of the Digital Animal.

Almost no single personality attribute had a noticeable impact on companionship, however, the attributes Loyalty, Friendliness and Cuteness are the most likely ones to have a significant impact on companionship. Negative attributes like aggressiveness, stubbornness and ugliness did in most cases not diminish an animal's companionship. The perceived personality attributes which express companionship qualities also impact Emotional Attachment.

Age has a direct influence on its appeal and not just as previously thought, in relation to infantile features. The findings of this paper indicate that Digital Pets can be companions regardless of their age. The age, however, changes the kind of relationship the user has to its Digital Pet.

The results of domestication level in cats and dogs varied greatly. The attractiveness and companionship in relation to domestication of dogs was found unrelated. Regarding the domestication of cats however, the observed preference of cats with a higher perceived domestication level indicates that in addition to attractiveness and companionship.

## Conclusion

### First Implication

Except for Domestication, most of the evaluated criteria showed an impact on the Emotional Bond towards the Digital Animal. Realism, Color and Visual Age are found to be especially relevant to the Appeal of Digital Pets.

Realism and Visual Age are especially promising for improving the designs of Digital Pets.

### Second Implication

**Realism**  
The higher the realism, the higher the Emotional Attachment

**Colors**  
Natural Colors are more appealing than unnatural ones

**Haptical Qualities**  
Strong indications of fur might benefit Emotional Attachment

**Personality**  
Indications that presumptions about their personality influence emotional attachment, but to an individual extent

**Age**  
Infantile features are relevant but not exclusively preferred. Digital Pets can express companionship regardless of their Visual Age. Age has an impact on the relationship/expectations on it

**Domestication**  
Even though domestic cat breeds were preferred, no definite answer is possible

## Results

Simplified depiction of survey results

