

# The Science of Cuteness

How Kawaii influences behaviours in different groups

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March 2024

My Scientific Question is:

*How does Kawaii influence the behaviours of different people?*

# Background Research

Ever watch a cute puppy or kitten videos on YouTube or go to a petstore and can't resist but want to say....."gnaaaaaaaaawhhh"? There's a word for that!

"Kawaii" is Japanese for "Cute" but it is much more than that! Kawaii is an emotion and varies between people but when we see something that we think is Kawaii, our mind, heart and emotions cause us to behave in similar ways even though we may have different cultures, backgrounds and education. No one is taught what is Kawaii and not, this means Kawaii is an emotion that is part of being a Human!

Kawaii has several practical purposes:

1. Being able to quickly decide if something is Kawaii or not is a survival instinct. Something that is NOT Kawaii can be a **sign of danger** and a warning to not come any closer.
2. Kawaii is useful for survival as being "kawaii" will **encourage others to protect** it (think of when you see a Kitten vs. a Spider).
3. If you believe something is Kawaii, it means you have a stronger desire to own, care for or bond with that animal, person or object. That higher desire to care and protect is used by baby's to ensure survival.
4. Businesses can be Kawaii **to encourage behaviours** such as people paying more for merchandise, products and experiences.

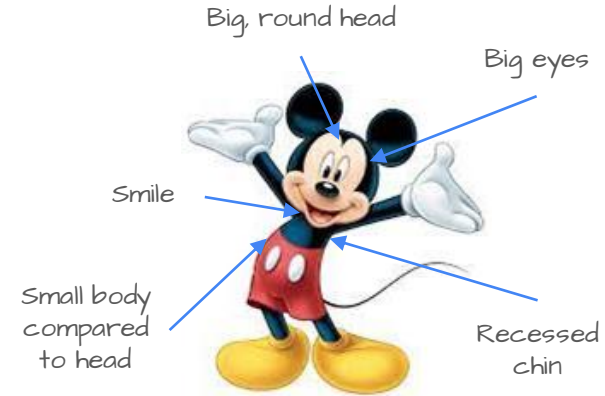


Figure 1 - Mickey Mouse's Kawaii characteristics

# Background Research

## What makes something Kawaii?

As People, we use a lot of data and process it very quickly to decide if something is Kawaii. Common factors of kawaii are:

- Object head to body size ratio
- Face shape and characteristics (Smile, eye shape, recessed chin, mouth size, forehead size)

## How does the head to body size of an object impact if it is Kawaii?

A smaller head to body ratio is more Kawaii. For example, a baby's head to body ratio approx 1:3 or 1:4 ratio (that means that the baby's body is 4x bigger than the head) compared to an adult head to body ratio is approx 1:7 or 1:8.



Figure 2 - Kawaii baby has a 1:3 ratio



Figure 3 - Not Kawaii adult has a 1:7 ratio

# Background Research

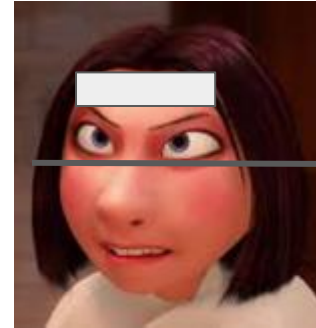
How does face shape and forehead size affect Kawaii?

A bigger forehead is considered to be more Kawaii. To make a bigger forehead, the eyes and nose should be together and near the bottom of the face.



Hello Kitty's facial features are on the bottom half of her face. This creates a larger forehead.

Figure 4 - More Kawaii picture with a larger forehead.



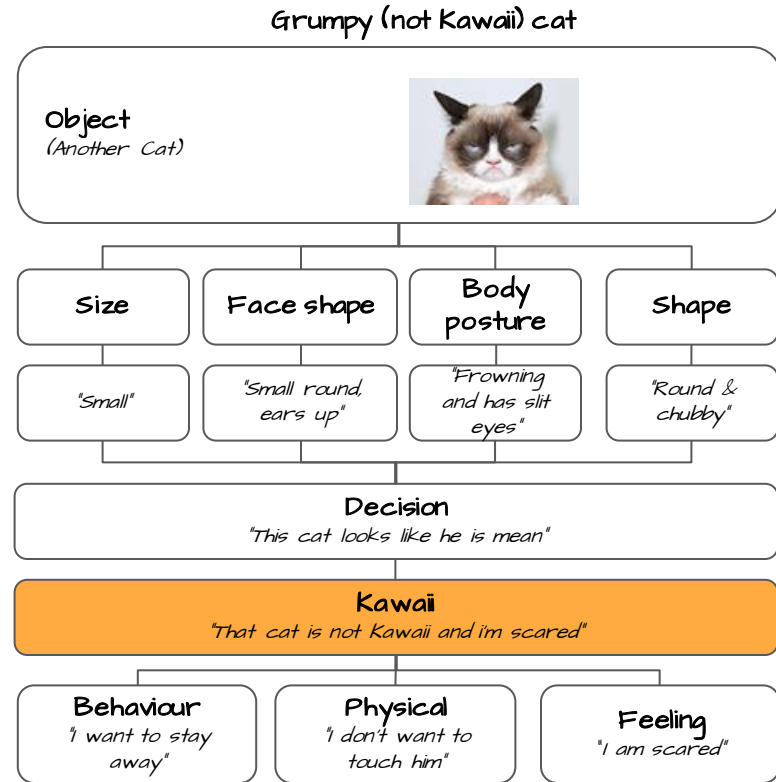
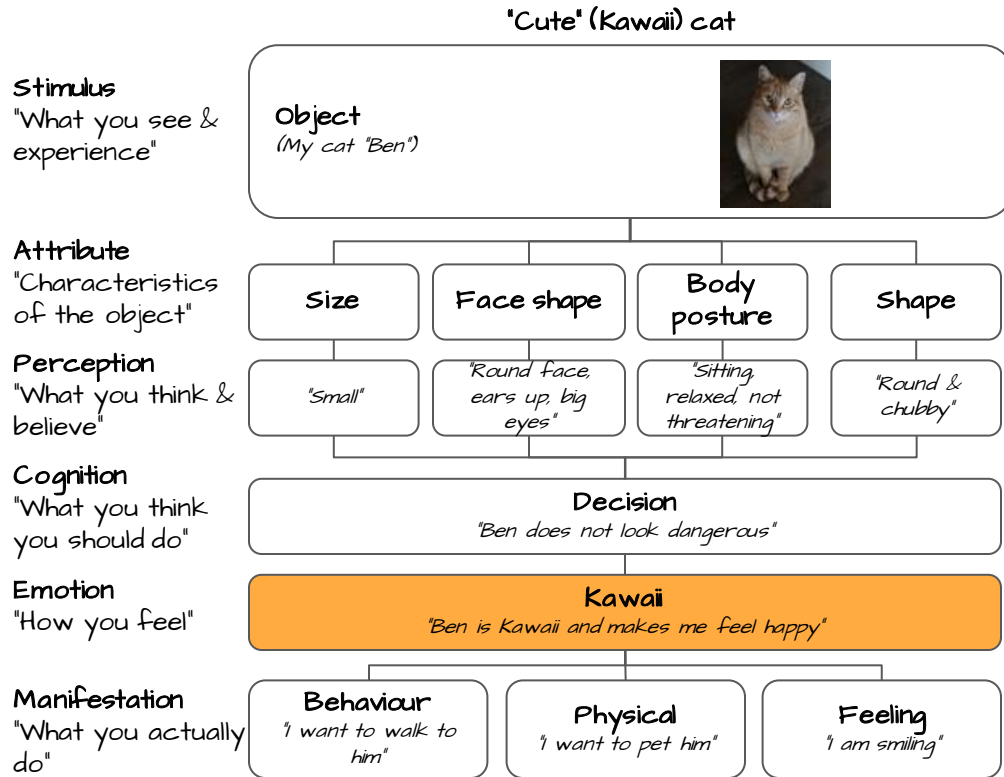
The Villain's nose and mouth is on the bottom half of her face. Her eyes are on the 50% of her face creating a smaller forehead.

Figure 5 - Less Kawaii villain with a smaller forehead

# Background Research

How does Kawaii impact our behaviour, feelings and physical actions?

The Cognitive Psychophysiology Laboratory created a model to show Kawaii impacts what we do, feel and behave.



# Background Research

**What happens in our brains when we see something that is Kawaii?**

It takes our brain 1/7 of a second (140ms) to decide if something is Kawaii and influence our behaviour. When we do see something Kawaii the "Happy zone" of our brains called the Orbitofrontal Cortex is activated and sensitive to Dopamine which is produced naturally by our bodies.

When Orbitofrontal cortex absorbs Dopamine, it gives us a naturally feeling of happiness - which is why we call the Orbitofrontal cortex our "Happy Zone".

The "Happy Zone" is also zone responsible for pleasure, emotions and more likely to forgive.

**How is being Kawaii beneficial?**

Being Kawaii is actually beneficial for survival. Parents are naturally conditioned to see their baby's as Kawaii. This means they are more likely protect, feed and nurture their child until they are old enough to be on their own.

When people keep their baby like features into adulthood, others are more likely to adopt, take care and nurture them as well. Keeping baby like features into adulthood is called "neoteny"



Figure 6 - "Happy Zone" activated when I see my Kawaii cat.

# Background Research

If something is Kawaii and i'm supposed to protect it, then why do I want to squeeze my dog/cat so much after school?

There is such a thing as having too much Kawaii. Seeing your highly Kawaii dog/cat after school can sometimes means you have too much emotion and happiness, this causes you to get really excited meaning you can squeeze, smoosh or even bite your dog/cat but not to cause harm. This over excitement is called "Cute Aggression".

**Can social pressures impact what genders think is Kawaii?**

A study from ("A Behavioral Science Framework for Understanding Kawaii") said that social pressures change how males see something as Kawaii. There is a belief that if males believe something is Kawaii, they may be "made fun of" or viewed less strong. As a result, males tend to generally rate Kawaii pictures lower than females. In fact, males tend to rate pictures Kawaii that are creepier and rate more kawaii things lower.

**How is Kawaii used today?**

Understanding how different genders think is Kawaii and how that encourages behaviours is really important. If a person views something as Kawaii, they are more likely to "want" or "protect" the that item, a stronger desire to "want" or "protect" means that they may want to pay more for that item they see as Kawaii.

Companies like Sanrio and Disney use Kawaii to create characters, merchandise and movies that many see as Kawaii, this then encourage people to pay more money for a product, visit theme parks and buy higher priced merchandise



# Hypothesis

For my Science Fair project, I will measure the impact of Kawaii ("cuteness") and how it impacts their willingness to pay for things that are Kawaii (very much like Disney and Sanrio do today).

My hypothesis is: if the participant believes an object is Kawaii, then it will result in a behaviour to want, obtain, care and protect that object (measured by how much they will pay more for that item (e.g. T-shirt))

In my background research, characters with smaller foreheads tend to be less Kawaii and characters with larger foreheads will be more Kawaii. Babies have about 1:4 head to body ratio but adults have about 1:8 head to body ratio.

In this experiment I am measuring:

- a. How adults and students rate five different pictures based on Kawaii.
- b. How boys and girls rate five different pictures as Kawaii
- c. How Kawaii influences our behaviour towards an object (measured by what we are willing to pay for merchandise)

# Variables

Controlled	Responding	Manipulated
<ul style="list-style-type: none"><li>• Same five pictures (Old Mickey Mouse, Jafar, Battle Cat, Mickey Mouse, Baby Cow).</li><li>• Same genre of pictures (cartoon).</li></ul>	<ul style="list-style-type: none"><li>• How adults and students measure a picture as Kawaii.</li><li>• How boys and girls measure a picture as Kawaii.</li><li>• How Kawaii encourages us to pay more for merchandise.</li></ul>	<ul style="list-style-type: none"><li>• Gender of participants</li><li>• Type of participant (student or adult)</li></ul>

# Experimental Design

1. Create a standardized survey with clear definitions and instructions for each participant to follow.
  - i. The survey must contain a mix of pictures of different levels of expected Kawaii.



Old Mickey Mouse



Jafar



Battle Cat



Mickey Mouse



Baby Cow

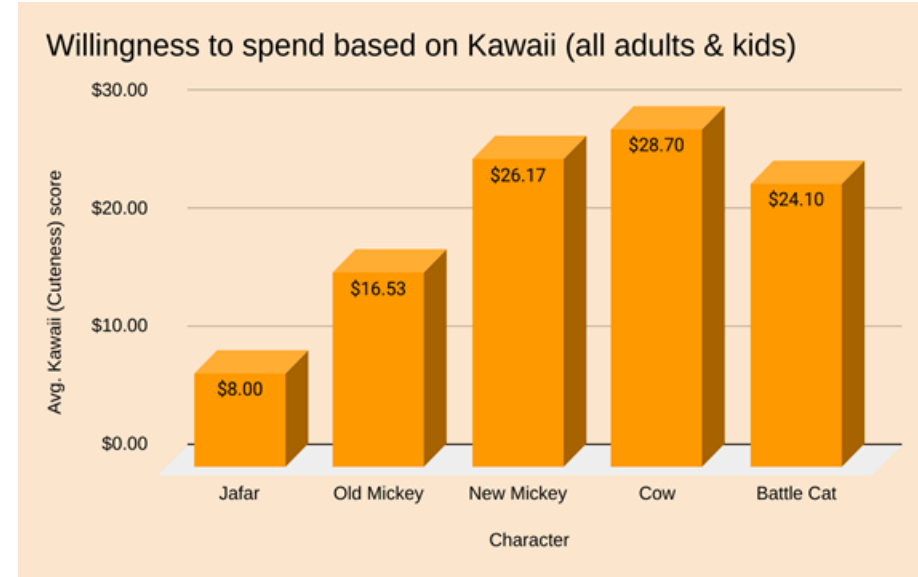
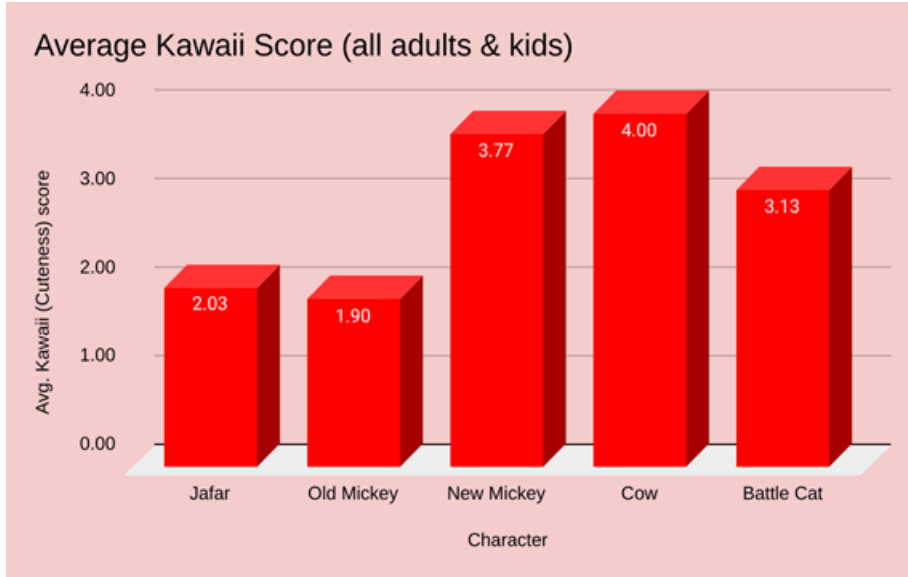
Increasing Kawaii

1. Ask each participant to answer the same 10 questions about the pictures in the survey.
2. Let them fill out the survey for all 5 pictures within the survey that includes, questions on:
  - i. The Kawaii score for each picture (1 being low Kawaii, 5 being high Kawaii)
  - ii. Provide a brief description of why they provided the score
  - iii. The amount of money they would pay for each picture
3. Collect response from random participants (approximately the same number of adult males, adult females, student males and student females).

# Procedure

1. Find approximately 30 participants (approx. equal mix between males and females, adults and students)
2. Ask them to fill out the Standardized Survey
3. Record data in Google Sheets to automatically calculate:
  - a. Average Kawaii score per picture per type of participant
  - b. Average amount willing to pay per picture per type of participant
4. Make graphs based on data
5. Analyze data and draw conclusions based on responses

# Charts

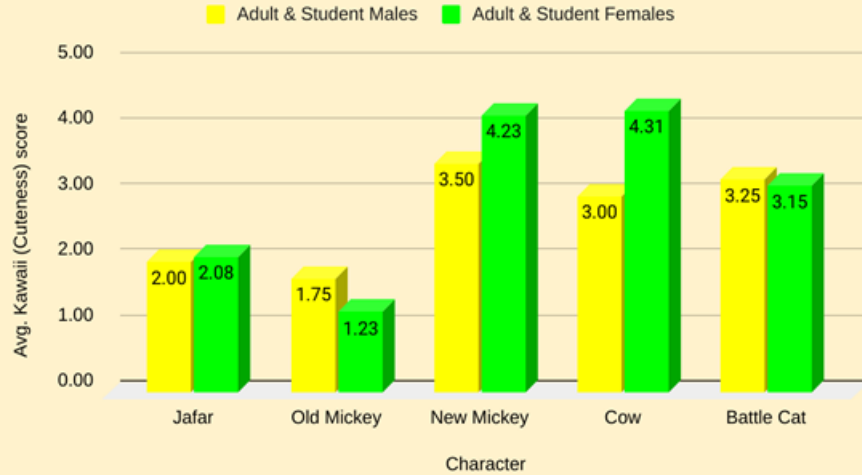


- Pictures expected to be high Kawaii also scored the highest.
- Pictures expected to be lowest Kawaii as scored the lowest.
- The willingness to pay also matched closely with Kawaii scores.

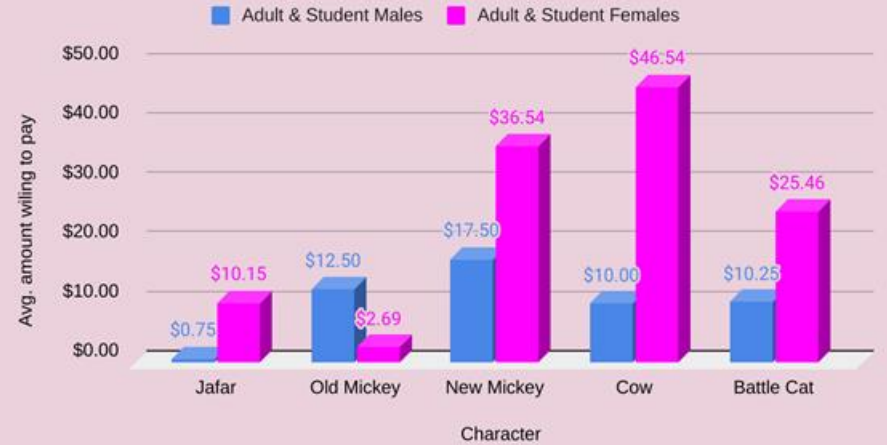
The results support my hypothesis.

# Charts

Avg. Kawaii Scores (All males compared to all females)



Avg. amount willing to pay for Kawaii (All males compared to all females)

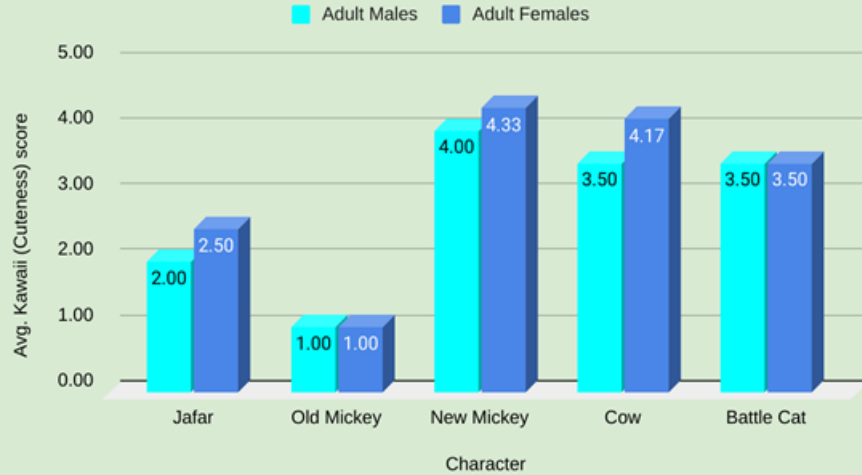


- For females, there is a strong correlation between female rated Kawaii and willingness to pay (high Kawaii scores results in high amount paid).
- Males rated the Kawaii in each picture as expected (high Kawaii pictures had high ratings) but the willingness to pay did not change despite the Kawaii of the picture.

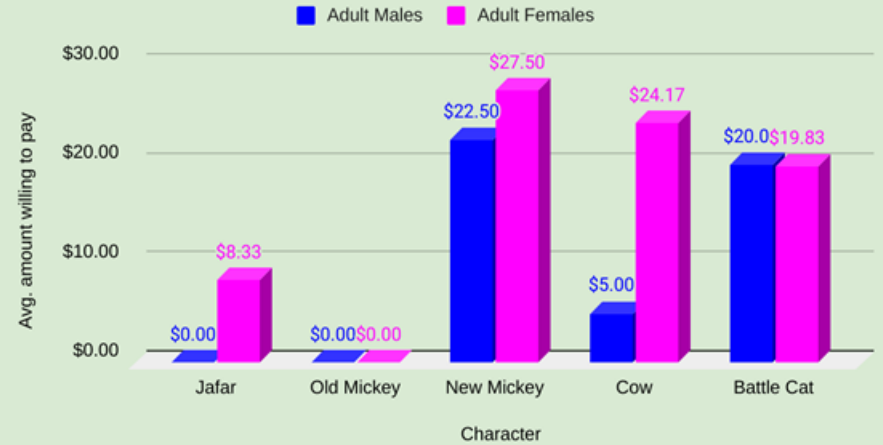
The results do not support my hypothesis for males but does support my hypothesis for females.

# Charts

Avg. Kawaii Score (Adult males compared to Adult females)



Avg. amount willing to pay for Kawaii (Adult males compared to adult females)

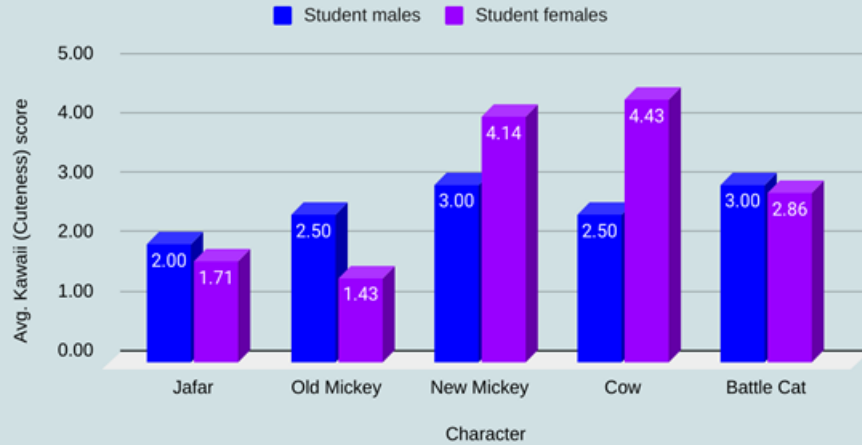


- For females, there is a strong correlation between female rated Kawaii and willingness to pay.
- For males, there is a similar correlation with the exception of the "cow" which had a very low willingness to pay despite a high Kawaii score. This low willingness to pay for the "cow" could be due social pressure where males do not want to appear weak and while they like the Cow picture, they are NOT willing to pay an amount that isn't practical.

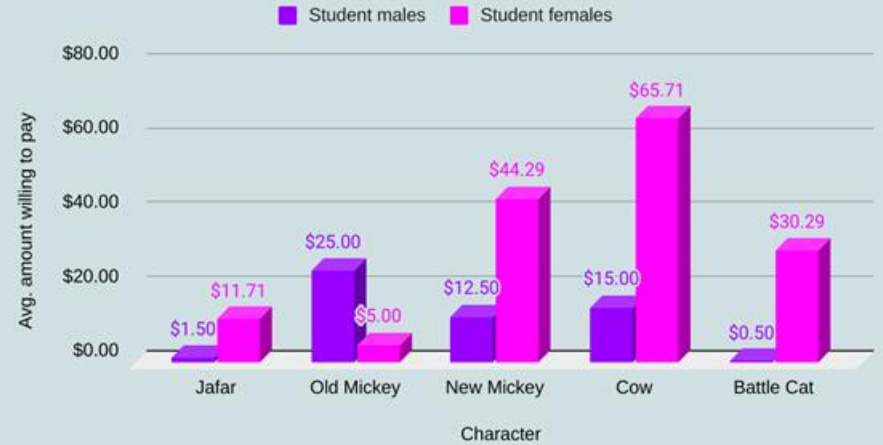
The results do not support my hypothesis for males but does support my hypothesis for females.

# Charts

Avg. Kawaii Score (Student males compared to student females)



Avg. amount willing to pay for Kawaii (student males compared to student females)



- For females, there is a strong correlation between female rated Kawaii and willingness to pay.
- For males, there is weak or no correlation between kawaii score and willingness to pay.
- Males were willing to more for pictures with lower Kawaii (Old Mickey). This is the opposite social pressure of paying for a cute picture. A "creepy" picture could be associated with being a less scared or stronger male and therefore a higher willingness to pay.

The results do not support my hypothesis for males but does support my hypothesis for females.



# Data Analysis

## All participants (Males and Females)

- Pictures expected to be high Kawaii also scored the highest.
- Pictures expected to be lowest Kawaii as scored the lowest.
- The willingness to pay also matched closely with Kawaii scores.

## Adult Males vs. Adult Females

- For females, there is a strong correlation between female rated Kawaii and willingness to pay.
- For males, there is a similar correlation with the exception of the "cow" which had a very low willingness to pay despite a high Kawaii score.

## All Males vs. All Females

- For females, there is a strong correlation between female rated Kawaii and willingness to pay (high Kawaii scores results in high amount paid).
- Males rated the Kawaii in each picture as expected (high Kawaii pictures had high ratings) but the willingness to pay did not change despite the Kawaii of the picture.

## Student Males vs. Student Females

- For females, there is a strong correlation between female rated Kawaii and willingness to pay.
- For males, there is weak or no correlation between Kawaii score and willingness to pay.
- Males were willing to pay the most for pictures with the lowest Kawaii.

# Conclusion

From my research, I observed:

1. Pictures that were expected to have the highest expected Kawaii scores (Baby cow, New Mickey and Battle Cat) also had the highest actual scores. Similarly, pictures that were expected to have the lowest Kawaii scores (Old Mickey and Jafar) had the lowest actual scores.
2. For females, the Kawaii scores were closely correlated with their willingness to pay.
3. For males, the results were more complex:
  - For Adult males, there was correlation between Kawaii and willingness to pay with the exception of the "cow". The cow had a very low willingness to pay despite a high Kawaii score. This low willingness to pay for the "cow" could be due social pressure where males do not want to appear weak and while they like the Cow picture, they are NOT willing to pay an amount that isn't practical.
  - Student Males were willing to pay more for pictures with lower Kawaii (Old Mickey). This is the opposite social pressure of paying for a cute picture. A "creepy" picture could be associated with being a less scared or stronger male and therefore a higher willingness to pay.
  - The impact of social pressure for males and their willingness to pay was similar to the results from research papers published by Hiroshi Nittono ("A behavioural science framework for understanding Kawaii")

# Real-life applications

There are several ways to use the results of my research, this experiment helps People:

1. Understand how objects can be changed to look more or less Kawaii.
2. Understand the connection between Kawaii and our behaviours. Specifically our desire to protect objects, animals or people that are Kawaii.
3. Understand how Kawaii can be used to influence our behaviours that can be used by businesses to improve revenue by targeting merchandise to certain types of people (adults vs. kids, males vs. females).

# Sources of Error

During my experiment, the results, analysis and comments from participants indicated that there were some sources of error, specifically:

1. The Battle Cat was considered Kawaii by many participants but the picture was only black and white so and impacted people's decisions and behaviour.
2. Familiarity of the character impacted participant scores. People are familiar with Disney movie's and know that Mickey Mouse is a protagonist (hero) and Jafar an antagonist (villan). This impacted their Kawaii scores.
3. We had 30 participants, the survey results could be more accurate with more participants.

# How to improve

I could improve my experiment by:

1. Maintain a good pace on the experiment to ensure data is analyzed quickly.
2. Getting more participant to respond.
3. Use technology better by using an online survey to get more participants.
4. Replacing the Battle Cat with a colored picture make it similar to the pictures.
5. Replace more familiar characters with unfamiliar characters as people answered questions based on their previous knowledge.

# Further questions

Some question that could be done in the future are:

1. Do people from different countries rate Kawaii the same?
2. Will people pay more for the picture on a different article of clothing?
3. Do people in elementary, junior high and high school males and females score Kawaii the same?

# Citations

- Micu, A (2023). What Makes Things Cute? Mind and Brain
- Kringelbach, M. How Cute Things Hijack Our Brains And Drive Behaviours. THE CONVERSATION
- Elleven (2022). The Science of Cuteness. [www.Medium.com](https://www.Medium.com)
- Nittono, H (2010). A Behavioral Science Framework for Understanding Kawaii. [www.ResearchGate.Net](https://www.ResearchGate.Net)
- No Author. (2021). Awwwww: The Science of Animal Cuteness [swv.org/learn/blog/awwwwww-science-animal-cuteness](https://swv.org/learn/blog/awwwwww-science-animal-cuteness)
- Old Mickey Mouse- Snopes.com
- Jafar- Dreamlight Valley Wiki
- Battle Cat-World of Battle Cats
- Baby Cow- Pintrest
- New Mickey Mouse-Great Characters Wiki