

**H**ave you ever found yourself smiling when presented with a cute character in a website or video game? Maybe you have noticed that a virtual character displays a personality of youth or excitement, or a friendly demeanour. Designers often purposefully enhance such characteristics to impart positive feelings and to help establish a micro-relationship between the user and the character. For instance, in Japanese culture, the “cute” aesthetic known as “kawaii” is used by many organizations for many purposes, including mascots for the police and warning signs for dangerous areas as well as for video game characters.

Nobuyoshi Kurita of Musashi University in Tokyo has said that “Cute is a magic term that encompasses everything that’s acceptable and desirable in Japan.” Using cute to motivate and inform can seem a strange choice, but there may be something that cute can do which deserves more focus and research to understand.

At the Mixed Reality Lab at NUS, we are interested in understanding the principles of “cute” design. We noticed that the Japanese style of kawaii embodies a special kind of cute design, from which designers of interactive media could learn new techniques to engage users. Cute can lessen fear and make dreary information more acceptable and appealing. We draw an analogy between the effects of cute and the flavored coating on a bitter pill that makes its consumption more agreeable. As the flavored layer improves the pill, so too can the cold, digital, electronic, and unsettling internal components of a technological system be made more palatable with a cute user interface that delivers the content of the system in a friendly and attractive way (see Fig.1). We have begun to research the different variables that influence perceptions of kawaii so that we can help designers to develop technology that benefits from the power of cuteness.

### A short history of kawaii

In Japan, kawaii is a word that signifies cute things, specifically things that are surprisingly sweet, adorable, innocent, simple,

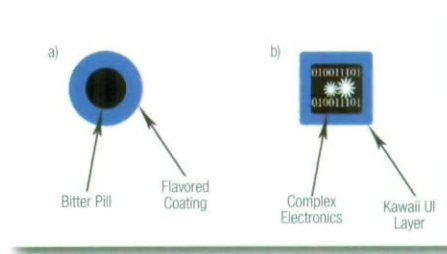


Figure 1: a) Bitter pill with a flavored coating. b) Cute interface layer.

gentle, and vulnerable and that can activate people’s nurturing sentiment. The influence of the contemporary cute style is seen world-wide in popular culture. The most widely known kawaii-inspired design is probably the “Hello Kitty” line from Japan, which features a cat with exaggerated round features and sweet, innocent cuteness. Some other examples are Teddy Bear from Germany and Moomin from Finland, and there are many more characters in the kawaii style.

### Cuteness in interactive systems

Our interest in cuteness in interactive systems is motivated by the desire to demystify the concept of cute. We hope to provide designers of interactive systems with a better understanding of this powerful aesthetic so that cute may be used as a new tool in the design palette. To do this, we need to better understand the user experience and the interdependence of the individual variables that make up the perception of cuteness. In the design world most things cute are made by companies that fiercely protect their market share. These companies rarely reveal secrets about how they appeal to consumers with special colors, shapes, and sounds. This is the core of the business for companies such as Sanrio, inventor of Hello Kitty, which provides constantly updated versions of their iconic character adorning fancy goods of all kinds. Such companies may keep a close eye on the fashion and color forecasting industries, working to ensure that their products will compliment the projected styles at release date. There is also a commonly held belief that brilliant designers with keen vision are the key to successful products.

# Designing Cute Interactive Media

Research into “cuteness” could help digital media designers make their products more appealing.

by Adrian David Cheok, Michiko Ohkura, Owen Noel Newton Fernando and Tim Merritt

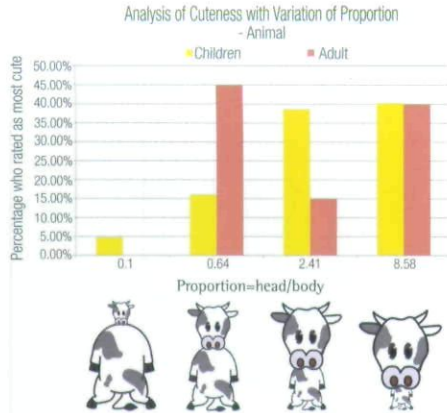


Figure 2: Analysis of cuteness with variation of proportions.

Our research aims to demystify the input of the designer, in a sense, by pinpointing the elements that play a part in the cute interactive experience. This goes beyond staying abreast of the latest trends. Knowledge about individual users' perceptions is crucial to relationship-building in cute interactive systems. Some researchers are working to acquire this knowledge, considering individual variables, the role of context, culturally developed preferences, and social semiotics.

## But what makes it cute?

We have conducted extensive user studies involving 80 respondents from diverse backgrounds in order to better understand the concept of kawaii and the variables of the interactive system that affect its perception. Participants came from around the world, in total 42 males and 38 females, with an overall average age of 26.

Our studies began with the creation of a broad definition of kawaii from the Japanese perspective. With the resulting definition, we determined that there are some key individual variables such as color, motion, sound, texture, and size which should be examined alongside the overall kawaii impression from the holistic system. We then asked school children, university students, and the general public to look at these individual variables and at holistic systems. For instance, we asked participants in the study to rate the cuteness of figures drawn with different proportions (see Fig. 2 for the results of an analysis of variously proportioned cows) or to consider cuteness as a function of color (see Fig. 3). Figures 4 and 5 illustrate some advanced studies which looked in detail at shape and color in a two-dimensional plane and a three-dimensional space.

The results of the various experiments yielded interesting insights into the perception of cuteness. We found that shapes

that are curved are generally rated as more kawaii than shapes with more sharp angles and straight edges. Colors, however, provide more complex results; the rating of cuteness varies based on the context, saturation, brightness, and background colors. As shown in Fig. 3, a surprising trend was that children would select aqua-green as the "most cute" color. This shows how perceptions vary among various groups of users, and underlines the necessity of carrying out more detailed studies in carefully selected contexts across a user base of many cultures and demographics.

## Future directions

Preliminary research into the user perception of cuteness has begun. We are gaining a better understanding of the perceptions of users ranging from young to old, male and female, and across cultures. With the lessons learned, we can build the next generation of user interfaces to take advantage of the "cuteness" factor, so that they establish more emotionally powerful relationships with users, encouraging happiness and positive experiences.

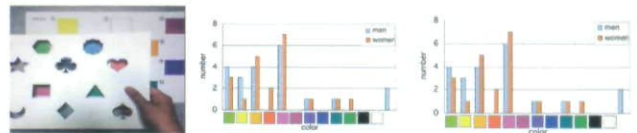


Figure 4: Analysis of kawaii colors and shapes in a two-dimensional plane.

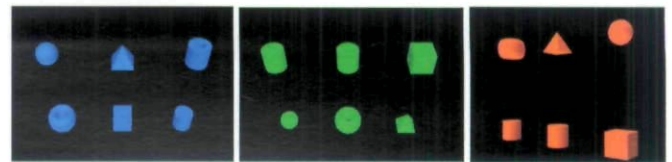



Figure 5: Analysis of kawaii colors and shapes in three-dimensional space.

Our current research efforts include the construction of various interactive systems that incorporate the cute aesthetic. These systems make available a platform for additional user studies into the impact of cuteness. We are also developing a series of "cute filters", which allow for real-time transformation of elements to increase the cute emotional connection with an individual user. Our projects include a specially designed 3D virtual world for social networking and a small, cute robot that can connect and interact with social networks, such as Facebook, enabling tangible social networking. In a more radical way, this research could apply to interactive experiences beyond the screen by guiding the development of cute in other contexts, such as new cute foods, textures, smells, etc. 

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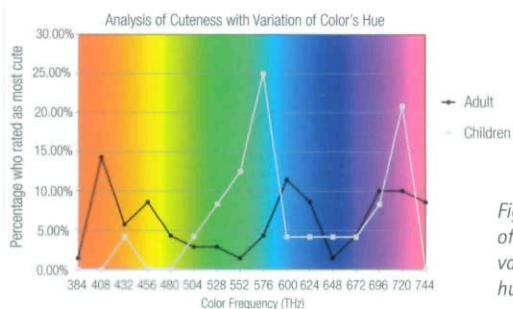


Figure 3: Analysis of cuteness with variation of color's hue.

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