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“Cute” displays: Developing an Emotional Bond with Your Mobile Interface

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ABSTRACT

In this paper the concept of “cute” and psychological “cuteness” [1] are used as platforms for understanding human emotional response to mobile phone design. The focus is on graphical user interface (GUI) icons and how the design is used to strengthen semantic relationships between the image and function and encourage emotional bonds between human and appliance. The hypothetical argument is that affectionate perception of mobile technology increases user cognition.

General Terms

Design and Human Factors.

Keywords

Cute; icons; user interface; mobile phones; user psychology

1. INTRODUCTION

“Impressive”, “clunky”, “breakthrough”, “amazing”, “chic” are all words which have been used to describe what once was, simply, a mobile phone. Every adjective draws on a repertoire of iconic and emotional associations. This is why as a deviation from the above mentioned adjectives the word “cute” is of interest in this paper. The paper stems from research traditions in the fields of Kansei Engineering, Kawaii (“cute” in Japanese) Engineering and psychology in order to analyse the development of mobile phone graphical user interface (GUI) icons. It looks at the symbolism of the well-known desktop metaphors still used to a great extent within mobile phone GUIs. Moreover, it explores the possibilities of breaking away from these “work-related” metaphors to develop a personal communication device which is not only usable, but ‘*user-friendly*’ through heightening emotional attachment within the user.

As an extension or diversification from the traditional treatment of the concept “computational semiotics”, whereby instead of investigating the semiotics within the intelligent computer system itself – the digital semiosis cycle which detects and models input from influences such as the surrounding environment (integral to the study of i.e. tangible interfaces) [2, 3, 4, 5, 6] – this paper suggests exploring computational semiotics from the perspective of the user, i.e. regarding the reception, interpretation and cognition of GUI icons. Further, the main focus of this paper’s

argument is that in order to increase usability of mobile phone (and subsequently any ICT) icons, attention needs to be placed towards product design which increases user comfort through familiarity and positive emotional response (affect) [7].

The paper begins by detailing “cute” and psychological theories of “cuteness” in reference to scholars such as Konrad Lorenz, Paul Leyhausen and Stephen Jay Gould. In reflection of the concepts of “cute” and “cuteness”, the user-centered design fields of Kansei (Emotional) Engineering, with its gimmicky Kawaii (Cute) Engineering spin-off, are described in a sub-section. The paper then progresses into discussion of the development of computer GUI icons, offering a brief history of desktop metaphors and examining the conversion of the icon to mobile communication technology. This section of the paper additionally highlights traditions in attempting to draw positive emotional responses from users via icon characteristics and animations such as Microsoft’s Paperclip. The analysis then takes shape when illustrating the significance of “cute” in relation to the operating functions of GUI icons. From a psychological perspective, the paper specifically demonstrates the significance of “cute” in relation to the physical proportional and functional characteristics of the mobile phone.

2. CUTE AND USER-CENTERED DESIGN

2.1 Psychological “cuteness” and the Japanese “cute”

With over a century of mass cultural production of animations, novelty knickknacks and influences spanning from a vast array of cultural traditions, in modern consumerist societies the word “cute” often conjures up images of fluffy bunnies, baby animals and the colour pink. According to the online Ask Oxford Dictionary [8], “cute” refers to “endearingly pretty”, or in American English “sexually attractive”, “clever” and “shrewd”. In 1949, Konrad Lorenz developed an analytical ethnological model of cuteness, which referred to infant-like traits such as: physical disproportions, small body-size in relation to a large head, large eyes, dimples, small nose, round and soft body features. Personality characteristics which are defined as cute include innocence, playfulness, curiosity, affection, helplessness and fragility. [1, 7, 9]

In his 2008 workshop paper, “The Digital Gachapon Machine” Lars Erik Holmquist [10] refers to “cuteness” in light of the emotional response induced by human-machine reciprocation. Holmquist describes the gachapon designer toy dispensing machines which make sounds that correspond with the user-machine interactions, such as thuds when dispensing toys. Holmquist goes further to mention how the toys themselves induce positive emotional response in the consumer as each one is somewhat unique. It should not be surprising that the gachapon machines originate in Japan, which Ilya Garger [11] has deemed “one nation under cute”. Japan also happens to be the nation which throughout modern capitalist history has played a major role in defining the commercial view of cute on global markets. The Japanese word for cute is “kawaii”, the same word used for the *cute* derivative of Kansei Engineering, Kawaii Engineering, which will be explained in the “Kansei Engineering and its cute spin-off” section of this paper.

Garger speculates that in a society which is defined by its rigid social hierarchy, regimentation and emotional restraint, Japanese people not only want to handle a baby, but they want to be one. One could argue that it is not only those within the greatly pronounced “kawaii culture” who are attracted to the nostalgia of childhood, but also those in other parts of the world who are coping with living in a high pressured work climate on a daily basis. This is not to say that there are no variations in personal perceptions of cute, which does not always correspond with examples such as the round, mouthless cat, Hello Kitty. Yet, a common characteristic that scholars such as Lorenz and Leyhausen have discovered is the preference for, and positive response to, people and animals that display traits of infantility, like the physical features described above (i.e. large eyes, round soft features, naivety and playfulness). The primary response to cuteness is said to be one of nurturing and protectiveness; even in animals and birds, juveniles who display stereotypical infant characteristics and traits are more likely to receive more attention from adults of their species. Thus, the interplay between the user nurturing the appliance and the user utilising the appliance, as an expression of cuteness or articulated paedomorphosis (individuals who maintain child-like characteristics in adulthood: see Merriam-Webster Online Dictionary), is interesting to gauge in relation to mobile phones. For centuries technological appliances have been doted on by their owners, one only has to look as far as the garage to see a machine that has been washed, polished, pampered and accessorised – the car.

2.2 Kansei Engineering and its cute spin-off

The field of Kansei Engineering is an area which has been developed over the past 30 years [12]. Kansei Engineering, or Kansei Ergonomics, is a sphere of user-centred design which uses data collected from potential end-users to influence product development. As the name suggests, “kansei” (meaning “feeling” in Japanese) practitioners of Kansei Engineering are particularly concerned with gauging end-user emotional responses to products. A newer, somewhat novelty discipline termed Kawaii (Cute) Engineering, stems from this in its attempts to measure individuals’ perceptions of and responses to “cute”, particularly in relation to interactive media [13]. According to Cheok et al traditional technological engineering can be compared to a bitter pill to swallow – cold, hard and alienating. Cheok et al claim that to incorporate “kawaii” (cuteness) into a product, or GUI, is like including a “flavored coating [...] which is more agreeable by

establishing a relationship with the user and delivering the content of the system in a more friendly and attractive way” (4). In other words, they argue that by “flavor coating” the GUI, users are enticed to use the appliance through thinking of the technology in terms of pleasure instead of work.

3. WORKING WITH THE DESKTOP

3.1 The problem with icons

What does this have to do exactly with mobile phones? Over the last decade mobile phones have developed from being awkward and bulky portable telephones, barely adequate to make phone calls let alone send SMS (short message service) messages, to compact personal organising devices (personal digital assistants - PDAs), capable of playing music and movies, supporting web browsing and facilitating an array of communication forms from phone calls to video messages. Whilst the design of the devices itself has progressed in leaps and bounds in terms of, i.e. enlarging the graphical user interface (GUI) to allow for easier reading of messages and icons, and streamlined bodies which slip easily into pockets and handbags, the icons have remained a challenge for scholars of usability¹. In terms of iconic language, symbols and metaphors must be learned.

Scholars have identified three types of mobile phone symbols (or computational symbols): representative, direct or concrete symbols (those which most closely resemble the objects they refer to); abstract or inferential symbols (simplified less concrete symbols which may i.e. symbolise actions or directions); and arbitrary symbols (symbols which are purely known through familiarity and have no visual relationship to that which they represent) [14] [15]. Although there may seem to be a hierarchy amongst the icon types in terms of understandability, it may be argued that usability of the mobile phone icons always requires that the users familiarise themselves with an icon in relation to the function it represents. This happens regardless of whether the icon is representative or otherwise. The next section “Development of GUI icons” provides a brief outline of the evolutionary process of the icons from 1960s computer development to the mobile phone interface, which many by now are familiar with. This discussion then leads into the key aspect of this paper’s argument regarding “cute” and the generation of positive affect. Based on the writings of Norman [16] and Hazlett and Benedek [17], positive affect (emotion) is said to “broaden one’s thoughts and actions repertoire” [17] (307) and thus, it may be further argued, through exploratory actions in appliance usage, positive affect promotes a better understanding of the icons and their functions.

3.2 The creation of icons and the miniworld

Over the past four decades, users have become increasingly familiar with and adept at using icons within a personal computing (PC) context. The development of GUI icons in the way we understand them today began with research into computer graphics, such as Ivan Sutherland’s Sketchpad in 1963 [18], and projects which examined how children could learn in simulated “microworlds” (Jean Piaget and Seymore Papert’s Logo Project) [19]. Alan Kay, a Xerox Palo Alto Research Center (Xerox PARC) employee, was influenced by Jerome Bruner, an expert in

¹ see for example McDougall & Curry 2004 [14]; Chung et al. 2007 [15]

child learning, who had developed a theoretical model based on different learning mentalities. Kay found that Bruner's model, which consisted of: the *enactive* (or first) stage of learning through action; the *iconic* (or second) stage of learning through an organisational system of sorting visual and other sensory material into summarising images; and the *symbolic* (or third) stage of learning through representation in language (textual and otherwise) [20], could be utilized within all computer interface settings in order to increase learnability for people of all ages. This justified the need for human-computer interactions to take place via pictures, and/or in simulated environments. [19]

The Alto, which preceded the Xerox Star (released 1981), was the first computer to feature icons, folders and documents, and is still in use today by major companies such as Microsoft and Apple [19]. In 1979, Apple's Steve Jobs was inspired by Xerox's graphical interface, and set to work on designing the Apple Lisa, the first personal computer to comprise a graphical interface, introduced to the market in 1984. Lisa's grayscale GUI comprised simplistic representational icons for clipboards, wastebaskets, preferences, clock, calculator, widgets, and profiles. In comparison to examples of the Xerox Star UI icons, Lisa's icons seem more complex yet more abstract. Particularly when gazing at the original clock or preferences icons, the Xerox Star already outshone Apple Macintosh in terms of bold and sophisticated design. Indeed, Xerox's file, document, calculator and clock icons appeared to have kept their shape in contemporary icons featured in products from Microsoft Office to Nokia mobile interfaces.

Stemming from the earlier "miniworld" idea, computers and particularly their graphical UIs were designed to be all-in-one offices. As the above mentioned icons suggest, they were to replace the real space of the office, to include the waste paper bin, filing cabinet, clock, calculator and then the computer embedded functions such as colour management, etc. To make this "miniworld" more real, in 1988 Steve Jobs's research team released the neXSTEP, the first computer after his exit from Apple Macintosh, which featured 3D beveled icons [21]. Later on in the 1990s, it could be argued that Microsoft Windows's success over the still more technologically advanced Apple Macintosh was substantially influenced by Windows's sharp and "good looking graphics" [21].

In the case of mobile phones, the concept of the "miniworld" takes on a different meaning. Rather than simply being an office in a box, the mobile phone is a telephone, personal planner, dictation machine, home entertainment system, outdoor navigation system and camera. For many, desktop metaphors have eased the transition from PC to mobile, yet with a device that is intended to be kept and used close to the user, for the most personal of purposes, are office analogies truly the right connection between user and function?

The next section 'My Cute Mobile', discusses the idea of creating GUI icons which induce emotional responses in the user in order to bridge the gap between user and function. Examples are introduced in the cases of the Apple Lisa and Microsoft office assistants.

4. MY CUTE MOBILE

Icons themselves were designed to bridge the link between user and computational demands by using recognisable (or learnable) metaphors to replace the rigidly complex command line interface

of the early 1960s [22]. Attempts at generating an emotional bond between human and computer via icons and animations have occurred since the beginning of personal computing. Already in 1984, artist Susan Kare's smiling computer icon on the Apple Lisa notified the user that the system boot-up was successful. Further, not too many users can forget Microsoft's paperclip office assistant, which always managed to 'tap' on the display screen when the author had just mentally formulated a complicated sentence. Successful or not, the value of emotionally appealing virtual helpers and icons have not been taken for granted. Significant investment has been placed in the development of these by organisations such as the US Defense Advanced Research Projects Agency (DARPA) and projects such as the Cognitive Assistant that Learns and Organizes [23].

With the past and current work taking place in regards to increasing the usability of the traditional PC GUI as an evaluative platform, creating emotional attachment, developing affect between the consumer [24] and product, and investigating the manipulation of psychological processes associated with responses to "cute" (with consideration for cross cultural variations), can and should receive more attention. When considering the physicality and function of a mobile phone, with its compact and almost miniature "baby animal" scale, and its function of being possibly the most intimate piece of communication technology invented, it might not be inaccurate to say that users can and do treat their mobile as a pet, or at least, extension of their persona. Already personalisation and "cutening" is seen as taking place through changeable bodies and cases, attachable charms and accessories, personalised screensavers and ringtones. Yet, would it not be fair to say that the personalisation or "cutening" of the icons themselves might enhance the overall usability of the appliance, and perhaps lead to the utilisation of more of the functions that the phones have to offer?

Even within Bruner's research into child learning it was discovered that through the *iconic* and *symbolic* learning of the computer's "miniworld" – or understanding factors as components of a complex whole – children could much more easily grasp even abstract concepts. If the mobile phone appliance is treated in terms of a "cute" appliance, then perhaps creating a coherent "miniworld" or "cute miniature whole" would assist users in exploring, and thus familiarising themselves, with the device. Resembling a parent, whether that be to a human, animal or machine (i.e. automobile), the user has a will to know everything about the device, ensuring that every part functions as it should in a complex whole. Perhaps, instead of treating the functions in terms of separate and relatively unrelated icons, the incorporation of animation, emotion and personalised feedback amongst the icons might form some kind of harmony between the functions, the device and the user.

As mentioned earlier, the high levels of enthusiasm and interaction featured in Microsoft's paperclip were somewhat overwhelming for most users to cope with. Yet, if there were a way of developing a possible tamagotchi-style (handheld electronic pet device) approach to designing the icons in relation to one another, in a way that they were still understandable in terms of recognisable icons (i.e. camera, text messaging, calendar and settings), but seen as integral parts of this personalised handheld *baby*, then perhaps the user would not only be enticed to explore the device, but would feel more comfortable in understanding it through a logical coherence. Possibly, there

would be increased emotional attachment to the device, and more like cars, mobile phones would acquire individual names. “Progressive juvenilization” as Stephen Jay Gould [25] puts it – the means of adjusting characteristics to mimic infancy (as with the life progression of a tamagotchi) – may not be directly effective in terms of the overall physicality and user context of the mobile phone. Yet investigation into the means of generating the same nurturing bond between user and appliance, as seen in the example of cars, is worthwhile in an attempt to dissolve human-technology barriers (which are commonly language based).

5. CONCLUSION

This paper has been a speculative discussion drawing on the fields of Kansei and Kawaii Engineering, psychology and computer graphical GUI history for inspiration. It has been written during the process of an icon usability study I am conducting as a part of the Theseus Project at the User Psychology Laboratory, University of Jyväskylä Finland. The paper has progressed from the definition and description of “cute” to the history of computer GUI icons, and has lead into the discussion of emotional connection generated through animated icons. In light of still apparent resistance to and misunderstandings of mobile phone GUI icons I am discovering in my empirical Theseus study, the purpose of this paper was to re-think the ways in which designers approach the development of the icons themselves. It is in my opinion that rather than treating icons and their functions as separate entities, they should be designed and perceived as a complex “whole”, allowing for easier memorisation and cognition. Whereby the desktop metaphors of PCs and Apple Macs served to create the illusion of a “total office”, mobile phone icons seem disjointed and a collage of unrelated themes and functions (from file icons and arrows to music notes). Overall, in such a personal device it may seem fair to suggest the introduction of new metaphors and themes, which break away from the work-related atmosphere created by desktop imagery. Perhaps even “contacts” may transfer into “friends”, “applications” into “entertainment”. Or the mobile phone layout may be designed in a miniature house format, with different rooms and environments for different functions (office included). The central idea behind this proposal is to reduce complexity and increase coherence.

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7. REFERENCES

- [1] Lorenz, K, and Leuhausen, P. 1971. *Motivation of Human and Animal Behavior*. Van Nostrand Reinhold, New York.
- [2] Innocent, T. 2004. *lifeSigns: Eco-System of Signs & Symbols*. Cosign Conference 2004. University of Split, Croatia, DOI=http://www.cosignconference.org/downloads/papers/innocent_cosign_2004.pdf
- [3] Hartley, E. 2004. *Bound Together: Signs and Features in Multimedia Content Representation*. Cosign Conference 2004. University of Split, Croatia, DOI=http://www.cosignconference.org/downloads/papers/hartley_cosign_2004.pdf
- [4] Salway, A. and Ahmed, K. 2000. *Computational Semiotics: a framework for integrating multimedia information?* In: Holmqvist, Kuhnlein and Rieser (Eds.). *Proceedings of the Integrating Information from Different Channels in Multi-Media Contexts*. Workshop at ESSLLI 2000.
- [5] Gudwin, R. 1998. *On the Generalized Deduction, Induction and Abduction as the Elementary Reasoning Operators within Computational Semiotics*. *Proceedings of the 1998 IEEE ISIC/CIWISAS Joint Conference Gaithersburg, MD*. (Sep. 1998), 14-17.
- [6] Gudwin, R. 2000. *Computational Semiotics Group*. DOI=<http://www.dca.fee.unicamp.br/projects/semiotics/>.
- [7] Genosko, G. 2005. *Natures and Cultures of Cuteness. Invisible Culture – An Electronic Journal for Visual Culture*. DOI=http://www.rochester.edu/in_visible_culture/Issue_9/issue9_genosko.pdf.
- [8] Cute. 2009. In *Ask Oxford Online Dictionary*. DOI=http://www.askoxford.com/concise_oed/cute?view=uk.
- [9] Karr, K. Last updated 2009. *Cuteness*. DOI=<http://www.handsomely.org/Cute/encyclopedia.htm>
- [10] Holmqvist, L.E. 2008. *The digital gachapon machine. Designing Cute Interactive Media Workshop*, at DIS 2008 Cape Town, South Africa. (Feb. 24 2008)
- [11] Garger, I. 2007. *Hello Kitty: One Nation Under Cute*. (Mar. 1 2007) DOI=<http://www.psychologytoday.com/articles/200703/hello-kitty-one-nation-under-cute>
- [12] Nagamachi, M. 2002. *Kansei engineering as a powerful consumer-oriented technology for product development*. *Applied Ergonomics*. 33. 289–294.
- [13] Cheok, A. Fernando, O., Merritt, T. and Zhang, C. 2008. *Introduction to Kawaii Engineering: analysis of Cute Interactive Systems* DIS 2008 Workshop. *Designing Cute Interactive Media Workshop*, at DIS 2008 Cape Town, South Africa. (Feb. 24 2008)
- [14] McDougall, S. and Curry, M. 2004. *More than just a picture: Icon interpretation in context*. DOI=http://www.cs.bath.ac.uk/~complex/cwc2004/Published/L04_McDougall.pdf
- [15] Chung, S., Chau, C., Hsu, X. and Lee, J. 2007. *The Effects of Gender Culture on Mobile Phone Icon Recognition*.
- [16] Jacko (Ed.) *Human-Computer Interaction, Part II, HCII 2007*. Berlin: Springer-Verlag, 252-259.
- [17] Norman, D. 2004. *Emotional Design: Why We Love (Or Hate) Everyday Things*. Basic Books, New York.
- [18] Hazlett, R. & Benedek, J. 2007, April. *Measuring emotional valence to understand the user’s experience of software*. *International Journal of Human-Computer Studies*, 65(4), 306-314. Available online from ScienceDirect.

- [19] Sutherland, I. 2003. *Sketchpad: A man-machine graphical communication system*. Technical Report No. 574. New preface by A. Blackwell and K. Rodden. (Sep. 2003) University of Cambridge. DOI=<http://www.cl.cam.ac.uk/techreports/UCAM-CL-TR-574.pdf>
- [20] Barnes, S.B. n.d. Alan Kay: Transforming the Computer into a Communication Medium. DOI=http://www.ieee.org/portal/cms_docs_iportals/iportals/aboutus/history_center/Barnes.pdf
- [21] Bruner, J. 1966. *Towards a theory of instruction*. Harvard University Press, Cambridge.
- [22] Reimer, J. 2005. A History of the GUI. (May 5 2005). DOI=<http://arstechnica.com/old/content/2005/05/gui.ars/6>
- [23] Suleiman, S. 2005. The Evolution of Icons: how computer icons evolved over 40 years [Masters Thesis]. School of Humanities. Oxford Brookes University.
- [24] Campbell, M. 2009. Talking paperclip inspires less irksome virtual assistant. (Jul. 29 2009). DOI=<http://www.newscientist.com/article/dn17529-talking-paperclip-inspires-less-irksome-virtual-assistant.html>
- [25] Umemuro, H. 2009. Affective Technology, Affective Management, towards Affective Society. In: JA Jacko (Ed.) *Human-Computer Interaction, Part III, HCII 2009*. Springer-Verlag, Berlin Heidelberg.
- [26] Gould, S.J. 1980. A Biological Homage to Mickey Mouse. In *The Panda's Thumb: More Reflections in Natural History*. W.W. Norton & Company, New York.