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# Attachment Theory as Contributor for an Emotional Attachment Model in UX Research

**Alexander Meschtscherjakov**

Christian Doppler Laboratory  
for "Contextual Interfaces"  
ICT&S Center  
Salzburg University  
Sigmund-Haffner-Gasse 18  
Salzburg, Austria  
alexander.meschtscherjakov@sbg.ac.at

**Manfred Tscheligi**

Christian Doppler Laboratory  
for "Contextual Interfaces"  
ICT&S Center  
Salzburg University  
Sigmund-Haffner-Gasse 18  
Salzburg, Austria  
manfred.tscheligi@sbg.ac.at

**Abstract**

The HCI community is proud of being a true interdisciplinary research community consisting of researchers from a broad mix of different scientific fields. Especially user experience (UX) research is nurtured by the different perspectives of these areas. In this paper we describe the utilization of different theories from a variety of domains in order to inform the development of an emotional attachment model nested in HCI. We found that e.g. attachment theory or the model of the extended self provide valuable insights in the basic nature of emotional attachment.

**Keywords**

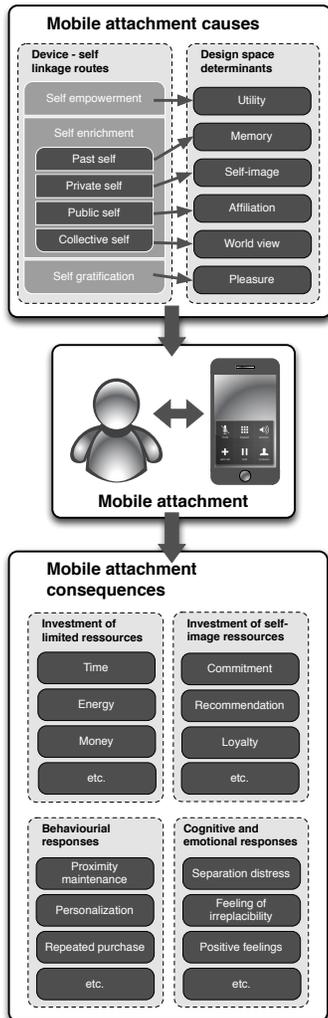
Attachment theory, emotional attachment, user experience

**ACM Classification Keywords**

H.1.1 [Models and principles]: Miscellaneous.

**Introduction**

Many people are connected to their mobile devices. They do not only use their smartphone as a commodity, but perceive it as part of their self. They are emotionally attached to their mobiles, thus feeling an ultimate form of user experience. In [4] we describe this relationship in detail and present a conceptual model of mobile attachment (i.e. the emotional attachment a person feels



**Figure 1:** Conceptual mobile attachment model - CMAM.

to his/her mobile phone). In order to get a deeper understanding of mobile attachment we relied on different theories from disciplines such as psychology and consumer research. Particular consumer research has been underrepresented in HCI so far. In this position paper we outline how different theories have contributed to the development of a Conceptual Mobile Attachment Model (CMAM) which can be regarded as a specific form of an overall UX model.

### Mobile Attachment

Mobile attachment can be defined as *a cognitive and emotional target-specific bond connecting a person's self and a mobile device that varies in strength* [4]. Thus, mobile attachment denotes a state of mind in which a strong cognitive bond connects the mobile device with an individual in such a way that the mobile device is assumed to be an extension of the self and, therefore, becomes part of the self-concept. The connection between the device and the self is fostered by a variety of causes. Once a person is strongly attached to a mobile device different consequences can be observed leading to an even stronger attachment. These different causes and consequences are structured in a conceptual mobile attachment model (CMAM) which is illustrated in Figure 1 and presented in detail in [4].

The mobile devices may contribute to the self-concept when they have the capability for *empowerment, enrichment and gratification* of the self. The empowerment of the self refers to the utilitarian meaning of the mobile device. The enrichment of the self is provided by the symbolic meaning of the mobile device. Here we can distinguish between different dimensions. The mobile device may enrich the past self by providing memories. The private self reflects the self-image a person

conceives. The public self reflects the affiliation of the self with a group or the differentiation from others. The collective self symbolizes a rather abstract idea or world view. The gratification of the self is achieved through hedonic qualities of the mobile device.

The existence of mobile attachment leads to various consequences for the user. These consequences may be the deliberate investment of limited (e.g. time, money) or self-image resources (e.g. commitment, loyalty). Simultaneously, a variety of other behavioral responses (e.g. proximity maintenance, personalization) and emotional responses (e.g. separation distress, feeling of irreplaceability) may occur. The observable consequences may be used to measure mobile attachment.

### Contributing Theories and Models

As stated above different theories and models contributed to the CMAM. In this section we describe how theories from psychology and consumer research have contributed to the CMAM.

#### Attachment Theory

Especially, attachment theory which is a psychological construct providing a framework to understand interpersonal relationships had a significant input for understanding mobile attachment. Bowlby [2] proposes that human infants are born with a set of attachment behaviors which aim at seeking proximity to an attachment figure as a predictable outcome and whose evolutionary function is protection of the infant from physical and psychological threats. Once attached, infants are able to use the attachment figure as a secure base for exploration of the environment and as a safe haven to which to return for reassurance. Over time the child's attachment system moves from a behavioral system in

infancy (dependent on actual physical availability) to a representational system, where security of attachment can be represented in mind and expressed in language.

For understanding temporal aspects and potential consequences of mobile attachment attachment theory was fruitful. It made clear that attachment evolves over time by reinforcing the relationship between the user and the attachment object (in our case the mobile phone). It is not dependent on a pure functional level. People may be not (only) attached to their mobile phones because their pragmatic properties, but because they could serve as a source of comfort and security. Attachment is not a bipolar property but is a continuum and evolves and changes over time. Especially valuable for the conceptual model was that the degree of attachment may be identified by infants behavior, which can be characterized by distinctive behavioral indicators of attachment such as *proximity maintenance*: the will to be near the attachment figure and *separation distress*: the anxiety during unwanted separation. These behavioral responses were included as possible consequences in the CMAM.

#### *Extended Self*

Another influencing concept was the work Belk [1], who examined the relationship between possessions and the sense of self from a consumer research perspective. The self-concept is generally described as the collection of characteristics, traits, and memberships that cognitively represent an individual in memory. Belk introduced the notion of “the extended self” and describes it as not limited to external objects and personal possessions, but also includes persons, places and group possessions as well as body parts and vital organs, ideas and experiences. External objects may be viewed as part of self, when we are able to control them and they can act as reminders

and confirmers of our identities. An unintentional loss should be regarded as a loss or lessening of self. Belk differentiated between different functions the extended self may provide. Objects in our possessions may literally extend the self, as when a tool allows us to do things of which we would otherwise be incapable. Consequently it serves as an enhancement of the personal power. Possessions may also be convenient means of storing memories and feelings providing a sense of who we are by linking them to our past. Another meaning of objects, which represent the extended self, is often a symbolic one. The object either serves as a symbol of who we are or to which group we belong.

Following Belk’s definition mobile devices can be seen as part of the extended self. First, they may extend the self by providing desired functions. Second, mobile devices can serve as a container for valuable memories (e.g., pictures, text messages). Third, they may provide symbolic functions to support the owner’s identity. Belk’s concepts influenced the definition of mobile attachment, as well as the CAMC. It lays the basis for attachment causes which are given when the mobile device is linked to various aspects of the self (see Figure 1).

#### *Brand Attachment*

Based on the concept of the extended self Park et al. [5] presented a conceptual model of brand attachment. Their model consists of three strategies for the brand-self associations (gratifying the self, enabling the self, and enriching the self) eventually leading to a certain degree of brand attachment. The strength of attachment is dependent on the connectedness between the brand and the self and the retrieval automaticity of positive thoughts and feelings. A strong brand attachment results in brand commitment (the behavioral intention to maintain the

relationship with the brand) and actual behavior patterns like the customer's willingness to sacrifice resources to continue their relationship with the brand. Such brand supporting behavior include the repeated purchasing of objects from the attached brand accompanied, the paying of a price premium, the recommendation of the brand to others, and the participation in a brand community.

The brand attachment model laid the basis for the distinction of different self-linkage routes in the CMAM, as well as possible consequences such as the investment of limited resources (see Figure 1). Similar to brands mobile devices can empower, enrich, and gratify the self. As a further refinement of this model we utilized Greenwald and colleague's [3] facets of the self to refine the CMAM. They distinguish between the diffuse self (hedonic satisfaction), the private self (reflection of identity and expression of individual autonomy), the public self (group affiliation meaning), and the collective self (approval from a reference group) from which different product meanings emerge. The latter three were literally used in the CMAM as facets of self enrichment. The diffuse self is reflected in the self gratification route of the CMAM.

## Conclusion

In this paper we have presented how theories from psychology and consumer research helped to get a deeper understanding of mobile attachment as part of the overall UX from an HCI perspective. We have described how attachment theory, the theory of the extended self, and brand attachment were utilized to build a conceptual model of mobile attachment. We found that it is worthwhile to rely on theories from various scientific fields to inform UX research. Following Roto's [6] UX model which describes 3 phases of UX (expected UX, UX during interaction, and overall UX) the conceptual mobile

attachment model itself can contribute to UX research as a very specific form of *overall UX* with mobile devices.

## Acknowledgements

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