

Communicate emotions through technological interfaces

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Abstract

Communicating with loved ones, lovers, partners, spouses involves naturally expressing, handling and understanding emotions. In a highly technologically society, interaction in this context is nowadays commonly assisted by technological interfaces, such as cell phones and computers.

How is emotion handled and transmitted throughout these interfaces? How do people express intimate emotions in technological mediated communication systems? Are those systems prepared to handle emotions without corrupting them?

In the perspective of Communication Design and Interaction Design, this paper discusses some of the recent literature about the subject and outlines some possible directions for the development of technological mediated communication interfaces, which might promote emotional expression discourses.

Body and mind work together when dealing with emotions: the body expresses emotion (tone of voice, facial expressions, body posture, physiological data); the mind works with feelings and is sensitive to external ideas. Without a face-to-face communication, the emotional expression of the body might not be seen.

Developments in communication interfaces indicate a growth in technology that provides body presence: incorporating video image, real time speech, integrating sensors, as a way to promote closeness. But the mind is resourceful and even without that input it has been shown that, in computer mediated communication, the communication of emotions is more explicit and more frequently, in opposition to face-to-face communication.

Some studies suggest that the input of subjective information related to emotions should be considered, in preference to objective information as physiological data: that personal emotional interpretation is a richer field to explore, in order to communicate emotions.

The use of ambiguous and evocative context driven, personal, narrative related elements, pointed to a multi-sensorial perception, seems to be a promising direction.

Key Words: Emotion, Interface, Relational artifact, Communication Design, Technological mediated communication, Multimedia.

1. Connection, relational – the world today

Connection is the central word. Everyone is connected to someone, all the time. People are connected as communities in social nets through the web and through their mobile phones, during work and leisure periods. And every part of the connection is able to be commercialized: everything is turned into a product and carries the possibility of being transformed into money. This is the reflection of contemporary occidental city life.

Contemporary art reflects, questions and rethinks life, so today's art reflects on interaction, social interactions, interpersonal relationship and interactions, and communication is all around.

It proposes alternative models to the profoundly rigid and "marketing" relationship models¹. This is the perspective of Relational Aesthetics theory proposed by Michael Bourriaud. That in today's society what can't be commercialized will soon disappear; that social connections between people are transformed into "standardized artifacts"², which are observed and controlled. This major idea was already present in Guy Debord's "The society of spectacle", from 1967, where he claimed that the relationships between people aren't directly lived by them, but blurred as a "spectacular representation" created by capitalism^{3 4}. However Bourriaud takes it a step further when proposing the "Society of Extras", a more contemporary vision: in this society the individual is no longer passive, but has a minimum action, promoted by the marketing forces⁵.

The word relational is central in this discussion, for it creates connection and it's the basis in communication. And related to communication with emotions, the word artifact has also been used before: Sherry Turkle uses specifically "relational artifact", related to the use of computers as communication tools and companions (pet robots) to promote emotional perception⁶; one decade before Turkle, the reference to the importance of promoting the involvement with an artifact in order to create affect was already stated⁷.

2. Communicating emotions: Body and mind

Being the "stage" where emotion performs, the body shows information through emotional expression: the tone of voice, the facial expressions, the body posture, Heart Rate, Skin Sudation, pupil dilatation, among others. It might be called objective information, for it can be gathered, captured and stored as data. According to Damásio, what distinguishes

emotions from feelings is the fact that emotions are directed to the exterior whilst feelings to the interior of the person⁸. Under this perspective, the experience of Feelings, in a person (and by a person) is something subjective, for it's connected to a whole group of personal experiences, rooted in a specific personality, surrounded by a particular environment and culture. And it only exists due to the conscience of self and it's an inside representation, derived from the conscience of emotion and the conscience of self⁹.

But if the body is the place where emotion happens, should the mind be the "house" of reason? For Damásio, the feelings are internal, therefore they happen in the mind, where the inside representation occur¹⁰.

The "Theory of the Affects" developed by the philosopher Baruch Spinoza¹¹ might give some perspectives on the duality of body and mind, as well of emotion and reason. It presents the correlation between body and mind: the mind is/has the power of thought and is receptive to external ideas; while the body is/has the power of action and is sensitive to other bodies. Although separated and autonomous entities, they developed together and work side-by-side. They both have the power to construct (act) and the ability to be changed (affected). Consequently, according to this theory, there's a connection between the power to act and the power to be emotionally affected – the more a person can be affected, more he or she has the ability to act¹².

What we called Reason is under the Spinozian perspective the power to act: action of the mind but also the action of the body. And Emotion the power to be affected: happens both in body and in mind¹³.

So, body and mind work together when dealing with emotions and reason: the body expresses emotion but also actions based on thought; and the mind constructs feelings and it is sensitive to external ideas, from which produces new ideas and theories.

If the expression of emotion is mainly in the body, what happens when the body is not present in the communication process? Without a face-to-face communication, the emotional expression of the body might not be seen.

3. Emotion and communication interfaces

How is emotion handled and transmitted throughout interfaces? How do people express intimate emotions in technological mediated communication systems? Are those systems prepared to handle emotions without corrupting them?

With the proliferation of technological mediated communication, the visual image of the body was the first to disappear, with the phone, then the voice with the keyboard and computer.

When people started to communicate without being face-to-face, new forms and new strategies of communication were invented. Already in the beginning of the 1990, a study indicated the necessity of the development of technologies that allow communicating when physical presence was not possible. And that also advocated the importance of psychological and physical contexts as motivating and important aspects in communication¹⁴.

New technologies that “cut off” the body from the communication process were invented, but also cutting edge new ones were created and that brought the “body back to the battlefield”.

Developments in communication interfaces indicate a growth in technology systems and products that provides body presence: incorporating video image, real time speech, integrating sensors, as a way to promote closeness.

It has been developed specially on moving, wearable products, which allow the user to carry them at all times and also to give the possibility of personalizing it. One of the most powerful communication tools nowadays is the mobile phone. Researchers and companies have been focusing their attention on mobile phones interface design in order to infer user’s behaviour, and to promote richer forms of communication (more attractive to the user). Besides image, real time video conference, access to the internet, as well as other functions, the integration of sensors in mobile phones is now a common feature. A few years ago, some of the leading companies, like Apple, were already researching on and implementing sensors on their products.¹⁵

But the mind is resourceful and even without the input of the expression of emotions, it has been shown that in computer mediated communication, the communication of emotions is more explicit and more frequently, opposing to face-to-face communication. This appears to be a contradiction, but might be explain by the reduction of physical/body tensions, specially in timid individuals and the consequent liberation feeling it produces on them¹⁶.

4. Communication interfaces that convey emotion: several aspects

The Communication Design (but also Industrial Design) perspective on designing interfaces for interpersonal communication has a strong social facet.¹⁷ So, there are two aspects considered fundamental, when designing interfaces: to incorporate meaning in the interface itself, and not only to communicate meaning through the contents; create or make use of a set of techniques which allow to involve the user. According to Leo and Budd¹⁸ there are some characteristics the interface should hold, in order to be effective: it must reflect or express a personality; be interactive or allow interaction; talks about a context; and that the design experience that is conceived for the user possesses a narrative.

For creating an engaging interface, the study of emotions should be focused in the ability to express emotion that will consequently promote user's emotion. Zagalo research helps to establish a direction to multimedia entertainment through the study of narrative. He points out the importance of adapting the emotional context use in cinema, to the interactive virtual narrative (IVN). Also that in cinema the emotional spectrum is broader than in IVN: in INV there is tension which promotes the user excitement and frustration, followed by the user's relaxation. Due to this lack of emotional variety, the user is less interested in the narrative and therefore less emotionally engaged by it, than in the cinema¹⁹.

In this same direction Foucault et al.²⁰ shows, in their study, that it is important to enlarge the range of emotions taking also in account the negative ones. They are also a fundamental part of the human emotional diversity and, in fact, they produce empathy among individuals (in a same community) through feelings of strangeness and curiosity, and subsequently promote interpersonal communications.

One other study presents the importance of context: the communication of emotional content and the expression of emotion is closely connected to personal meaning. With the pieces "Traces"²¹ and "Blossom"²², applied to the context of one family emotional communication, the design for personal significance is the central concern of this project. Here the communication of emotion within a family is made with affective digital jewels, and will relate (as each element will express) the continuum emotional flow of specific situations in a family²³.

This is an experimental alternative piece of technology which works as an acceptable place for highly emotional personal statements. And the object (each jewel) also acquires the state of emotional entity²⁴: the jewels act as an interface for expressing emotional content and they also possess the artifact, wearable, in the user qualities.

The recent review of Derk et al.²⁵ clarifies that there are two types of communicating emotions in Computer Mediated Communication systems: those which explicitly examine emotions and the expression of emotions with an objective approach; others which implicitly examine emotions through self-disclosure or emotional styles.

About the type of emotional information to use, Leahu et al.²⁶ suggest that the input of subjective information should be considered, in preference to objective information as physiological data. The fact is that personal emotional interpretation is a richer field to explore, in order to communicate emotion. And in the majority of the systems and products analysed, objective information is usually unfortunately used (it's easier to work with) as substitute for subjective experiences. This study recommends making use of user's emotional interpretation: to communicate emotion to the user from ambiguous and evocative aesthetic elements²⁷. One good example

of this approach is the project “Affective Diary”²⁸, whereas the relation between objective signals and subjective states “is a complex form of human interpretation”²⁹ Another aspect that is pointed by this study approach, and also consonant with previous section (1.Context, as indicated by Turkle³⁰ and Tan³¹) is the “possibility of generating an emotional artifact, personalized by the user”³²

5. Conclusions

The design of interfaces that communicate or express emotion is a current attention focus. In the field of Communication Design, social concern makes it fundamental to explore an approach more concentrate in the user and on his possibilities of expression emotion. The use of ambiguous and evocative context driven, personal, narrative related elements, seems to be a promising direction. The design of the communication interface as an artifact, rises other dimensions of emotion expression, making it even more complex and richer. Also important to retain that the design experience projected for the user should possess a narrative, as a way to engage and to allow him a richer and gratifying communication experience.

Notes

- ¹ Bourriaud, N., *Relational Aesthetics*. Les press du réel, Dijon, 2002 (ed. english language).
- ² *ibid.*, p
- ³ Crary, Jonathan, *Suspensions of perception: Attention, spectacle and modern culture*, The MIT Press, Massachussets, 2001, pp. 73-75.
- ⁴ Bourriaud, N., *Relational Aesthetics*. Les press du réel, Dijon, 2002 (ed. english language), glossary.
- ⁵ *ibid.*, glossary.
- ⁶ Turkle, Sherry, *Computer Games as Evocative Objects: From Projective Screens to Relational Artifacts*, in *Handbook of Computer Game Studies*, Joost Raessens and Jeffrey Goldstein (eds.), MIT Press, 2005.
- ⁷ Tan H. Z., Ifung Lu & Pentland, A, *The chair as a novel haptic user interface*, in *Proceedings of the workshop on perceptual users interfaces*. Banff, Alberta, Canada, 1997.
- ⁸ Damásio, António R., *O Sentimento de si: O corpo, a emoção e a neurobiologia da consciência*, Europa-América, Mem Martins, 2000 (9ª Ed., 1ª Ed. 1999). p. 57.
- ⁹ *ibid.* p. 103-104
- ¹⁰ *ibid.*, p. 155.
- ¹¹ Hardt, M., Foreword: What affects are good for In P. T. C. a. J. Halley (Ed.), *The affective turn: Theorizing the social*, Duke, Durham and London, 2007, x.
- ¹² *ibid.*, x.
- ¹³ *ibid.*, xi.
- ¹⁴ Hollan, J., & Stornetta, S., *Beyond being there*. Paper presented at the Proceedings of the SIGCHI conference on Human factors in computing systems, 1992.
- ¹⁵ Greene, Kate, “The iPhone's Untapped Potential: Apple could do a lot more with all the sensors in the iPhone”, in *Technology Review*, 29 Jun 2007, viewed on 8 May 2009, <<http://www.technologyreview.com/infotech/18990/>>
- ¹⁶ Turkle, Sherry. *A vida no ecrã: a identidade na era da internet*. Trad. Paulo Faria, Relógio d'Água, Lisboa, 1997 (Ed. orig. 1995).
- ¹⁷ Leo, D., & Budd, J., *The experiential interface: Creating emotionally engaging spaces*. In J. Frascara (Ed.), *Designing effective communications: Creating contexts for clarity and meaning*, Allworth Press, New York, 2006, pp. 256.
- ¹⁸ *ibid.*, 297.
- ¹⁹ Zagalo, N., *Convergência entre o Cinema e a Realidade Virtual*, (PhD Thesis), Departamento de Comunicação e Arte, Universidade de Aveiro, Portugal, 2007.
- ²⁰ Foucault, B., Mentis, H. M., Sengers, P., & Welles, D., *Provoking sociability*. Paper presented at the Proceedings of the SIGCHI conference on Human factors in computing systems, 2007.
- ²¹ Olivier, P., & Wallace, J. (2009). Digital technologies and the emotional family. *Int. J. Hum.-Comput. Stud.*, 67(2), p. 209-210.
- ²² Olivier, P., & Wallace, J. (2009). Digital technologies and the emotional family. *Int. J. Hum.-Comput. Stud.*, 67(2), p. 211-212.
- ²³ *ibid.*, p. 206.
- ²⁴ *ibid.*, p. 205.
- ²⁵ Derks, D., Fischer, A. H., & Bos, A. E. R., Review: The role of emotion in computer-mediated communication: A review. *Comput. Hum. Behav.*, 24(3), 2008, pp. 766-785.
- ²⁶ Leahu, L., Schwenk, S., & Sengers, P., *Subjective objectivity: negotiating emotional meaning*. Paper presented at the Proceedings of the 7th ACM conference on Designing interactive systems, 2008, pp 425-427.
- ²⁷ *ibid.* p. 425.
- ²⁸ Lindström, M., Stahl, A., Höök, K., Sundström, P., Laakso, J., Combetto, M., et al., *Affective diary: designing for bodily expressiveness and self-reflection*, Paper presented at the CHI '06 extended abstracts on Human factors in computing systems, 2006.
- ²⁹ Leahu et al., *Subjective objectivity: negotiating emotional meaning*, pp. 425-426
- ³⁰ Turkle, Sherry, *Computer Games as Evocative Objects: From Projective Screens to Relational Artifacts*, in *Handbook of Computer Game Studies*, Joost Raessens and Jeffrey Goldstein (eds.), MIT Press, 2005.
- ³¹ Tan H. Z., Ifung Lu & Pentland, A, *The chair as a novel haptic user interface*, in *Proceedings of the workshop on perceptual users interfaces*. Banff, Alberta, Canada, 1997.
- ³² *ibid.*, p.433.

³³ Bibliography

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