

Affective Widgets: supporting the daily work experiences of contact centre advisors

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ABSTRACT

Working in contact centres, customer advisors are subjected to a unique set of pressures which can deeply affect their workday experience. The tension between maintaining call handling performance targets and the demands of customers presenting problems can evoke feelings of anger and helplessness in the advisor. This project sought to address these issues by prototyping a Motivational User Interface (MUI), which incorporated the use of affective widgets ('moodies') to provide an outlet for the advisors' emotions.

Author Keywords

User experience, emotion, interface design, case study

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION: CAPTIVE USERS

Until the new millennium, one of the primary aims of HCI was the design and implementation of usable systems to support either work-force productivity or leisure-force choices. Extrinsicly motivated, captive users in the workplace needed to be able to work efficiently, effectively and with a certain amount of satisfaction; here the focus on satisfaction was that they would be less frustrated or stressed by the technologies. One particularly technology-driven job is that of the high volume work in call centres, where the captive users' time is focused on the number and length of calls they handle.

From a technology perspective, the call centre can be defined as an automatic call distribution (ACD) switch serving a number of telephony turrets, usually allied with a

database, workflow management or customer relationship management (CRM) system. The ACD has replaced the traditional central switchboard function: it logs all incoming calls, assigns them to advisors according to call types and advisor skill profiles and distributes calls across multiple centres (if appropriate). This forms "an unstoppable telephonic conveyor belt".

The ACD's management information system (MIS) has the ability to collect data on individual advisors in terms of calls taken, call length, time available to take calls and time offline. Time offline could include 'wrap' time (where they complete any actions as a result of a call) or time when they are simply unavailable to take calls. The original conception of the ACD was to smooth workflow, permit managers to collect data enabling better prediction of workload, and organise better and more efficient use of personnel. However, this data can also be used to pressurise advisors to be more productive. The call centre is probably the most controlled and measured business environment in modern society with every aspect of the advisor's working day, from their talk time with customers to the time they spend away from their desks, under scrutiny courtesy of the ACD [18].

THE USER EXPERIENCE

The research team examined the everyday experiences of call centre workers, with a focus on providing support for their emotional experiences. As Forlizzi and Battarbee observed: "emotion is at the heart of any human experience" [10]. By studying the customer service advisors' motivation, the authors found tensions between the measurement of talk time and the advisors' desire to answer questions and resolve problems the first time the customer calls [19].

Driven by performance measures, worried by customers, and monitored by the company, call centre advisors experience a considerable amount of job stress as they perform their emotional labours. Maintaining morale throughout all calls and avoiding stress through unexpected high volumes of calls is a major issue for advisors. In their study on job stress experienced by advisors, Gignac and Appelbaum [12] identified four main stressors. Dealing

with difficult customers was found to be a stressor, but this was perceived to be an inherent part of the job. A second stressor was a lack of social support. Thirdly, there were pressures from having to keep the intervention short and serving the customer well, ie. role conflict. Finally, techno-stress was identified as a significant stressor.

Techno-stress in customer service advisors can result both from using the computer as a work tool, and the technology which allows easy measurement of such things as talk time [9]. At the customer interface, the call management technologies drive their pace of work and monitor and measure their performance. Within the organisation, the database technologies may present either help or hindrance at the system interface. Customer service advisors have been found to experience work overload, insufficient time between calls, computer failures which further add to the workload, and long hours in front of a computer screen leading to irritability and headaches [9]: a far from positive user experience.

Furthermore, call centres are involved in the business of emotion. In the call centre 'emotional labour' is a key component of work. Taylor and Bain [35] define 'emotional labour': "to induce or suppress feeling in order to sustain the outward countenance that produces the proper state of mind in others...this calls for a co-ordination of mind and feeling". As Deery *et al.* [6] explain, employees are expected to display emotions that comply with certain expression norms or rules of the organisation that help to create a desired 'state of mind' in the customer. In this context, employees are expected to "appear happy, nice and glad to serve the customer in spite of any private misgivings or any different feeling they may have" [8].

Deery *et al.* [6] argue that excessive demands on emotional labour may lead to a higher risk of stress, anxiety and emotional exhaustion. Wharton [38] posits that differences between what employees might really feel towards their customers and what they are expected to display may prove difficult to resolve ('emotional dissonance'). In their study of call centre workers, Deery *et al.* [6] found that greater demands on employees' emotional labour resulted from dealing with a greater number of incidences concerning abusive customers. With consumer anger becoming common, customer expectations being raised by brand messages and advertising and a culture of complaining becoming more ingrained, the scapegoat in the process is often the person facing the customer. Customer facing people are increasingly saying that they are "cannon fodder", victims of abuse in a system where it is rarely their fault that a problem has occurred and they are helpless to do anything but apologise to the customer for the inconvenience.

According to Grayson [13], human-human communication can carry two types of value. The first is hedonic, being inherent in the communication itself and often serving emotional needs. The second value is instrumental, serving

a rational need or acting as a means to an end. Service-provider communication may offer hedonic value by engaging the customer's interest, entertaining the customer, or using courtesy and tact to make an interaction go smoothly. In order to meet the demands of the job, customer service advisors need to use a blend of hedonic communication, or 'soft skills' (building effective relationships with customers) and instrumental communication, or 'hard skills' (focusing on products and procedures).

The Motivational User Interface (MUI) project identified the need to acknowledge that customer service advisors have to deal with difficult customers by developing a prototype of a *motivational user interface* to provide both instrumental and hedonic forms of communication at the human-computer interface, whilst the customer service advisors performed hedonic and instrumental communication at the customer-company interface [19].

AFFECTIVE EXPERIENCES

Miner *et al.* [20] examined the relations between positive and negative events and feelings of pleasantness and unpleasantness (hedonic tone) during job performance. Advisors may be feeling 'undesired' emotions that they cannot express to the customer [33]. However, they may feel the need to release these emotions in some way. This was usually observed in the call centre in the form of (unseen) gestures to the customer during or after the call or, if time permitted before the next call, comments to advisors in their vicinity. Frustration and anger can be a vicious circle because advisors have to deal with both the source of their frustration (usually either the customer or feelings of helplessness relating to company process and policy), but also the emotional reaction itself. This is an aversive state that people tend to try and avoid or escape and is positively linked with emotional exhaustion and job dissatisfaction. It is argued that advisors are affected more by emotional dissonance than by emotional labour.

Aboulaflia *et al.* [1] provide definitions of affect and emotions. An affect is "an intensive and relatively short emotional state brought about by a sudden change in any circumstances vital for the person". Emotions are "situational states that are 'crystallised' in the object of emotional experience". Aboulaflia *et al.* suggest that while affects are short-term, emotions last longer and are relevant to activity spanning several situations. In their study of affect in the workplace, Brief & Weiss [5] observed that it is apparent that discrete emotions are important, frequently occurring elements of everyday experience, even at work. Thus in the call centre a series of discrete situations which evoke emotional reactions can become the cause of a more enduring emotional state in the advisors.

Emotion manifests itself verbally, viscerally, and behaviourally. Both the visceral and behavioural levels are subconscious, producing feelings but not true emotions; the verbal level is conscious and reflective [23]. A person may

initially recognize the occurrence of an affective experience, but they then must distinguish between the emotions so that they can give it a label verbally.

Visceral, behavioural and verbal manifestations of emotions can be captured by means of physiological, expressive or self-report data, respectively. The visceral experience of emotions can be captured by a range of physiological measures. These are direct assessments and therefore immune to bias; a useful review of the physiological approach is provided by Bamidis *et al.* [4]. However, Picard's reflections on the use of physiological measures are that people's expression of emotion is so idiosyncratic and variable, that there is little hope of accurately recognizing an individual's emotional state from the available data [28]. In addition, physiological data capture techniques are frequently criticised for detecting an emotional reaction without knowing exactly what the cause of the emotion was [37].

Wensveen *et al.* [37] have supported the use of physical action to express emotion rather than the more common use of physiological data. Since people express and communicate their emotions through behaviour, this behaviour is a source of direct information about the emotions. It also does not require any direct physical intervention or expensive hardware as with physiological data capture techniques. The disadvantages are that it cannot communicate the severity of the incident [31] and it does require the user to actively apply effort [31].

Klein *et al.* [16] and Picard and Klein [29] found that allowing a system to actively acknowledge and support user frustration and anger helped the user's ability to manage and recover from negative emotional states. Reynolds and Picard [31] suggest that "user interface widgets", e.g. a 'frustrometer' or thumbs up/down, can be used to actively express user frustration through direct user manipulation. The computer then needs to respond in a socially appropriate manner [29, 30]. Since negative events such as tense exchanges with angry customers would produce feelings of distress in the advisors, the Motivational User Interface project prototyped "affective widgets" to provide them with the opportunity to report these events.

AFFECTIVE WIDGETS

The 'moodie' was designed as a reaction to a difficult customer where advisors are experiencing moments of emotional dissonance [38] after completion of a call. After initial (politically incorrect) discussions around the use of a gun to shoot customers, the design team and the advisors settled on a more animated way of expressing frustration. The advisor could use the mouse to transfer a customer capsule (which represents a call) to the interface's waste bin. This action releases a 'moodie', an animated stick figure that struts up and down the screen with an exaggerated stride and body inclination, a posture designed to express a certain amount of frustration (see [17]). Reeves

and Nass [30] found that users of a system could attribute 'personality' even to something as basic as a stick man.

The moodie is an example of an 'affective widget' that can be unleashed by the physical action of throwing the customer capsule into the waste bin. This physical expression of emotion is akin to the kind of reaction that may have occurred in the physical world (i.e. throwing paper in a bin). It seeks to emulate the essence of that physical experience in a virtual space whilst tying it to the task (i.e. the call) via the customer capsule. Users have described this as "throwing the customer in the bin" and describe a visceral feeling of "naughtiness mixed with triumph". It could be argued that the moodie is designed to express stress and frustration and its usage does not distract from the task at hand because its task is solely to mediate and relieve stress *after* a distressing or difficult call.

The moodie can be used as non-linguistic, visual indication of state of mind as well as a humorous and slightly subversive outlet to relieve stress [34]. There seems to be very little research on the design of applications to support informal communication or task related "messaging around" which is often needed to relieve the pressures of the workplace [2]. Morkes, Kernal and Nass [21] found that humour, where used appropriately on an interface, did not result in task distraction and could add to likeability and acceptance. However, Reeves and Nass [30] warn against adding additional cognitive load to the advisor by drawing attention to an animation and taking concentration from the task at hand. Moodies can, therefore, be deleted, shared or stored by the advisors at any point.

Self-disclosure and privacy could also be an issue here [15], especially since stress at work is still somewhat stigmatised [18]. Fundamental to this is the assumption that the management culture of the call centre is not one of fear since, as Pfeffer and Sutton [26] say, "fear causes people to cheat, conceal the truth, focus on the short term and focus on the individual". This would not be conducive to moodie usage. To facilitate this, the advisor is in control of who sees the moodie. If the advisor has had a tough day, they can choose to send moodies to their buddies or to their manager. This is a similar device to the 'affective awareness GUI widgets' that have been used to support emotional awareness in computer supported collaborative work [11]. This allows users to control what sort of emotional data is collected on them rather than invading their privacy [31] and prevents emotional data from becoming another element of observation. They are also only likely to use this as a channel of communication where they perceive there to be a benefit to them [29]. By sending a moodie, advisors can trigger a more social dimension for emotional support [29] via supervisory and co-worker empathy. This can act as an important buffer to stress and can allow them to feel that they have someone there for them even if they are not physically near [24, 15].

Evaluating the Affective Widgets

When the MUI prototype was initially demonstrated to the call centre team leaders in their team meeting, they received the prototype very positively. However, due to the pressures of call volumes, the research team were unable to run a formal or controlled evaluation session for the MUI with advisors offline. Instead, the team went for an opportunistic sample of advisors who were taking breaks in the refreshment room. This resulted in a sample of thirty advisors who approached the design team in their break time for a five-minute walk through of the prototype. One of the research team was responsible for guiding the advisors through the concepts. A second researcher was responsible for making notes and probing advisors for their reactions throughout the demonstration. One could critique the validity of this opportunistic sample since the advisors self selected through expressing interest in seeing the demonstration and were, as a result, less likely to express disinterest in such a system.

Advisor comments (including any verbalised emotional reactions) were elicited as the demonstration proceeded and were recorded. The feedback was both favourable and overwhelmingly positive. Advisors especially appreciated the design since it was influenced by their direct experiences. There were comments such as "it is great that you really understand our experiences" and "this really seems to work on our level". Moodies seemed to catch everyone's imagination, with advisors expressing enjoyment at the possibility of gaining some kind of therapeutic revenge on awkward customers. It was felt that the emotional content of calls was generally ignored and that the moodie gave an outlet for these emotions. The advisors were able to anthropomorphise the moodie and empathise with its attitude. This is consistent with research evidence that people are hardwired to respond socially to cues in virtual characters that suggest that they have intentionality [30, 24].

Feelings towards the moodie tended to fall into the extreme positive or negative positions. Positive comments from the evaluation included:

- "I want one, now!"
- Advisors observed that they are a "bit like executive toys".
- They suggested that they could provide therapy with the ability to do things such as shoot them with a gun.
- They would like a team moodie display to gauge if the team were having a bad day.
- They could use them to communicate back to resourcing to indicate that they are on a tricky call and put them on an easier queue.

Negative comments were generally from managers, rather than advisors. Discussions were largely about the political correctness of throwing customers in the waste bin rather than the emotional function of the moodie. This indicated that people were actually associating the moodie on screen

with the customer on the line, despite the fact that neither are actually linked in the real world.

Longitudinal evaluation beyond this was not possible since the prototype was never used as part of the operational environment. Advisors were generally positive about both the effective and affective elements that were incorporated into the MUI.

DISCUSSION

On the basis of the user evaluation that was conducted, the MUI seems to meet Overbeeke *et al.*'s [25] criteria for 'a beautiful interaction' in that:

1. It functioned as it was supposed to.
2. It resonated with the needs, interests and skills (perceptual, motor, cognitive and emotional) of the user.
3. It fitted the general context of use.
4. It provided a rich interaction style.
5. It allowed users to create their own story and rituals of usage [7].

One point of discussion about the moodie is around how long it remains effective. There are opposing views about the effect of novelty on humour. On one hand, theory of surprise in humour would mean that its novelty would soon wear off. However, whilst surprise is a ubiquitous quality in jokes, it does not seem essential, based around the enduring quality of comedy routines [22]. Assuming the former is true, the moodie may need to incorporate some element of unpredictability, e.g. not always having a stick man as a response to throwing the call into the bin.

In terms of this form of emotional self-report, there is an argument that self-rating of stress is too subjective to be of use and that self-ratings can be over inflated and inaccurate, particularly via electronic communication [36]. This is why the data needs to be interpreted by a team manager who knows the individual and can use the emotional information in constructive ways. Rather than just using statistics that may not paint a true picture of the advisors' day, this provides an "information enriched environment", allowing the use of job and social resources to manage job demands and reduce stress.

This project sought to address the pressures experienced by contact centre advisors during their working day. The results from the motivation study had concurred with the stressors identified by Gignac and Appelbaum: difficult customers; lack of social support; role conflict; techno-stress [12]. Dealing with difficult customers whilst feeling isolated from their peers was clearly the main cause of the advisors' emotional exhaustion, particularly with respect to the fact that the monitoring technologies were collecting only quantitative data (call times) and not qualitative data (call type, which could have an adverse impact on call time). Introducing the moodie into the MUI design was a simple way of addressing this role conflict for the advisors, as they could then justify why their statistics showed that they had handled fewer calls during their shift. The

inclusion of 'mailbox' graphics in the interface design provided the opportunity to share experiences with others, and thus address the lack of social support available to the advisors whilst they were talking on the phone. Using the mouse to pick up a moodie and drop it into the supervisors', or a 'buddy's' mailbox enables the advisor to signal to others that they are having a stressful time. By using the notepad, the advisers can also send brief messages to others via the mailboxes. This paper has presented only one element of the MUI, which has been described elsewhere (see [14]). The other screen objects were designed to alleviate the tedium of spending long hours staring at the computer screen, by providing the advisors with a more interactive and enjoyable experience with their call handling system, and thus hopefully reducing some of their techno-stress [12]. However, this 'busy' interface has not been subjected to the test of time.

FURTHER WORK: AFFECTIVE FIDGETS?

It may be more interesting to take the advisors' self-report needs off-line, particularly if they were anxious that the moodies they produced could be monitored in some way. Picard [27] suggests that with self-report systems, the user might select words or icons on the display, or they might touch an input device (which acts as a tangible icon), to indicate how they are feeling. Self-report is notoriously inaccurate for getting true feelings, but self-report can be combined with concurrent expression to gather different types of information [27]. Concurrent expression involves the system attempting to sense affective expression whilst the user is working, via sensors such as, for example, mouse holding pressure [3].

The authors are interested in the use of self-report tools: special surfaces users can hit, squeeze or bang on [27]. A brief pilot study involving extremely low-fidelity prototyping of "affective objects" [32] was carried out to see how the advisors would react to the concept of "affective fidgets" as a more physical behavioural expression of emotion during call handling. No typical 'stress toys' were provided, as they might influence the reactions of the advisors. However, the objects needed to be inviting to use, easy to handle, and varied in colour, texture, and potential activity value. A team of 13 advisors (from 18 to 50 years old) was given baskets containing collections of what is best termed 'pre-school construction materials'. Each advisor was invited to have fun, and to use the materials in any way they wished during one hour of their call handling shift, depending on their mood. Ten-minute off-line interviews subsequently identified why they had chosen to use the objects they had selected.

Rather than reject the concept of 'emotion toys', some advisors were reluctant to relinquish their baskets after the hour. They commented that bringing playful objects into an office environment made a change from the usual pen, paper and call-handling technology. In particular they felt that the colours were important to brighten up the day.

During discussions it became clear that the advisors could see that there would be some use in having materials to hand during moments of "monotony/ boredom/ repetition/ tedium". Most advisors acknowledged that the materials would prove useful to keep them calm (for example, when dealing with difficult customers). One advisor described how relaxed he felt, and that his relaxed mood was passed onto the customers. He would have liked the materials to keep him calm when he experienced a particularly difficult call later in his shift. Another advisor felt that it was important to have "non-conscious" objects, to prevent her from being distracted when call handling. She found the items therapeutic and fun to use.

Asking advisors to focus on what they do with the materials during specific call handling experiences may reveal a relationship between their "affective fidgets" and their emotional states. This brief study identified some advisors' stressful moments from the final state of the materials. For example, one advisor had twisted pipe cleaners into tight spirals around his pen, and he observed that this had been as a direct result of dealing with an angry customer. If such relationships can be established, it may be possible to develop electronic "affective fidgets" to collect kinaesthetic feedback from the advisors' hand movements. These patterns of manipulation could reveal the mood swings experienced by an advisor during the course of their shift, and provide further opportunities for emotional support.

REFERENCES

1. Aboulaflia, A., Bannon, L., Fernstrom, M., Shifting perspective from effect to affect: some framing questions. In: Helander, M., Khalid, H.M., Tham, P.O. (Eds.), *Proc. Int. Conf. on Affective Human Factors Design*. ASEAN Academic Press (2001) pp. 508-514.
2. Abramis, D.J. Play at Work: Childish Hedonism or Adult Enthusiasm?, *American Behavioural Scientist*, 33:3 (1990), 353-373
3. Ark, W., Dryer, D., Lu, D. The Emotion Mouse, In H.J. Bullinger & J. Zielger, (eds.) *Human-Computer Interaction: Ergonomics and User Interfaces*, London: LEA (1999)
4. Bamidis, P., Papadelis, C., Kourtidou-Papadeli, C., Pappas, C., Vivas, A.. Affective computing in the era of contemporary neurophysiology and health informatics. *Interacting with Computers*, 16 (2004), 715-721
5. Brief, A., Weiss, H., Organizational Behavior: Affect in the Workplace. *Annu. Rev. Psychol.* 53,(2002) 279-307
6. Deery, S., Iverson, R., Walsh, J., Work Relationships in Telephone Call Centres: Understanding Emotional Exhaustion and Employee Withdrawal, *Journal of Management Studies*, 39:4 (2002)
7. Djajadiningrat, J.P., Gaver, W.W., Frens, J.W. Interaction Relabelling and Extreme Characters: Methods for Exploring Aesthetic Interactions, *Proc. DIS 2002*, London (2002), 285-291.

8. Erickson, R.J., Wharton, A.S. Inauthenticity and Depression: Assessing the Consequences of Interactive Service Work, in *Work and Occupations*, 24:2 (1997), 188-213.
9. Feinberg, R., Kim, I., Hokama, L., De Ruyter, K., Keen, C. Operational determinants of call satisfaction in the call center, *Int. J. Service Industry Management*, 11: 2, (2000) 131-141
10. Forlizzi, J., Battarbee, K., Understanding Experience in Interactive Systems, *Proc. DIS 2004*, Cambridge, Massachusetts: ACM (2004), 261-268
11. Garcia, O., Favela, J., Licea, G., Machorro, R. *Extending a Collaborative Architecture to Support Emotional Awareness*, CICESE, Mexico (1999)
12. Gignac, A., Appelbaum, S. The impact of stress on customer service representatives: a comparative study, *Journal of Workplace Learning*, 9:1 (1997), 20-33
13. Grayson, K., Customer responses to emotional labour in discrete and relational service exchange, *Int. J. Service Industry Management*, 9:2 (1998), 126-154
14. Hole, L., Crowle, S. Millard, N., The Motivational User Interface, In: J. May, J. Siddiqi & J. Wilkinson (eds) *HCI'98 Conference Companion*, Sheffield: UK (1998)
15. Howard, S., Vetere, F., Gibbs, M., Kjeldskov, J., Pedell, S., Mecoles, K., Bunyan, M., Murphy, J., Mediating Intimacy: Digital Kisses and Cut and Paste Hugs, *Proc. HCI 2004: Design for Life*, 2, Leeds: BCS (2004)
16. Klein, J., Moon, Y., Picard, R.W. This Computer Responds to User Frustration, *Interacting with Computers*, 14 (2002), 119-140.
17. Millard, N.J., Hole, L., In the Moodie: Using 'Affective Widgets' to Help Contact Centre Advisors Fight Stress, *Proc. The Role of Emotion in HCI Workshop, HCI 2006:Engage*, London: BCS (2006)
18. Millard, N.J. Designing Motivational User Interfaces: Can A Balance Between Effective And Affective User Interface Design Be Used To Motivate Call Centre Advisors? Unpublished PhD thesis, Lancaster University (2005).
19. Millard, N., Hole, L., Crowle, S., Smiling through: motivation at the user interface, in: *Proc. HCI International'99, Volume 2* (1999) 824-828, Mahwah, NJ, London: Lawrence Erlbaum Associates
20. Miner, A., Glomb, T., Hulin, C., Experience sampling mood and its correlates at work, *Journal of Occupational and Organizational Psychology*, 78 (2005), 171-193
21. Morkes, J., Kernal, H., Nass, C., Effects of Humour in Computer-Mediated Communication and Human-Computer Interaction, *Proc. Human Factors in Computer Systems (CHI 98)*, Los Angeles: ACM Press (1998)
22. Nilsen, D.L.F. (1990), Incongruity, Surprise, Tension, and Relief: Four Salient Features Associated with Humour, *Studies in Literary Humour*, 9:2 (1990), 22-27
23. Norman, D., Introduction to This Special Section on Beauty, Goodness, and Usability. *Human-Computer Interaction*, 19 (2004), 311-318
24. Nowak, K.L., Biocca, F., The Effect of the Agency and Anthropomorphism on Users' Sense of Telepresence and Social Presence in Virtual Environments, *Presence: Teleoperators and Virtual Environments*, 12:5 (2003)
25. Overbeeke, K., Djajadiningrat, J.P., Hummel, C., Wensveen, S., Frens, J., Let's Make Things Engaging, in Blythe, M.A., Monk, A.F., Overbeeke, K., Wright, P.C. (eds), *Funology: From Usability to Enjoyment*, Kluwer Academic Publishers (2003,) 7-17.
26. Pfeffer, J., Sutton, R., *The Knowing-Doing Gap*, Harvard Business School Press, November (1999)
27. Picard, R.W. *Affective Computing*, MIT Press (2000),
28. Picard, R., Affective computing: challenges. *Int. J. Human-Computer Studies*, 59 (2003), 55-64
29. Picard, R.W., Klein, J., Computers that Recognise and Respond to User Emotion: Theoretical and Practical Implications, *MIT Media Lab Tech Report No 538*, (2001)
30. Reeves, B., Nass, C.I., *The Media Equation: How People Treat Computers, Television and New Media Like Real People and Places*, Cambridge: Cambridge University Press (1996)
31. Reynolds, C., Picard, R.W. *Designing for Affective Interactions*, MIT Media Lab, (2001)
32. Scheirer, J., Picard, R.W. Affective Objects, *MIT Media Lab Technical Report No 524*, (1999)
33. Sturdy, A., Fineman, S., Struggles for Control of Affect - Resistance as Politics and Emotion, in Sturdy, A., Gruglis, I., Willmott, H. (eds), *Customer Service: Empowerment and Entrapment*, Houndmills: New York (2001), 135-156.
34. Taylor, P., Bain, P. Subterranean Worksick Blues: Humour as Subversion in Two Call Centres, *Organization Studies*, November (2003)
35. Taylor, P., Bain, P., An Assembly Line in the Head: Work and Employee Relations in the Call Centre, *Industrial Relations Journal*, 30:2 (1999)
36. Weisband, S., Atwater, L. (1999), Evaluating Self and Others in Electronic and Face-to-face Groups, *Journal of Applied Psychology*, 84 (1999), 632-639.
37. Wensveen, S., Overbeeke, K., Djajadiningrat, T., Touch me, hit me and I know how you feel. A design approach to emotionally rich interaction, *Proc. DIS2000*, New York: ACM (2000), 48-53
38. Wharton A. The Affective Consequences of Service Work, *Work and Occupations*, 20 (1993), 205-232.