Affective computing technology for fostering an emotionally healthy workplace

Pamela Lirio and Pierrich Plusquellec

Abstract

Purpose – *This paper aims to present affective computing or Emotion AI in the context of work and how organizational leaders such as managers and human resource (HR) professionals can implement this technology to foster an emotionally healthy workplace.*

Design/methodology/approach – *The authors provide a current overview of affective computing technology through definitions, examples and general use cases. This is in light of the current scrutiny on artificial intelligence (AI) use broadly across society. The authors address this from a research perspective and show how this advanced AI tool can be implemented in organizations for the benefit of employees.*

Findings – *Affective computing or Emotion AI is still relatively unknown, and yet, it is already part of our daily lives. Emotion AI platforms have the potential to be an essential part of HR tools. It is crucial, however, to use this technology in an ethical and responsible manner.*

Originality/value – *There is little awareness and understanding of use cases of affective computing tools in organizations, particularly for the well-being of the workforce. This paper provides HR leaders, managers and researchers with an overview of the origins of the field and major considerations for responsibly implementing Emotion AI to support employee mental health.*

Keywords *Human resource management, Ethics, Technology, Human capital, Wellness*

Paper type *Viewpoint*

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Introduction

Affective computing or Emotion artificial intelligence (AI) is still relatively unknown to organizations, and yet, it is already part of our daily lives. When individual users open their new generation iPhones via a Face ID prompt, put on wearable technology to track the number of steps walked in a day or use immersive headsets for gaming purposes, they are engaging with the results of affective computing. Increasingly, this technology based on forms of emotion recognition and/or emotion expression will be an essential part of tools for human resource management (Becker *et al.*, 2022). It is important to understand fundamentals of emotions and why examining emotions in the workplace, systematically and objectively, can lead to a positive future of work. Above all, however, it is critical to know how to implement affective computing technology in an ethical and responsible manner.

Emotions displayed in organizations

Emotions in the workplace can have significant and beneficial effects if used appropriately (Totterdell and Niven, 2014). For example, negotiating anger can destabilize the opposing party but can also damage interpersonal relationships. In a seminal study, Barsade (2002) showed that an entire group could be influenced by the emotion of a single person via emotional contagion, and that this process played a major role in the productivity of the group. Totterdell and Niven (2014) also showed how mood, which is derived from emotional experience, is directly associated with job satisfaction, decision-making ability, creativity

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and absenteeism. Mood disorders such as anxiety, stress and burnout have unfortunately become very common and are detrimental to employees and their organizations. In fact, research has shown that mood disorders affect 15–20% of Canadian workers (Marchand *et al.*, 2015). Managing emotional culture is the next challenge for human resource (HR) professionals and undoubtedly represents an important factor for employee retention (Barsade and O'Neill, 2016).

What and where is affective computing?

Affective computing, sometimes referred to as Emotion AI, is the field of research that allows machines to not only reproduce human emotions but also to recognize them (Picard, 2003). Building upon knowledge in the field of nonverbal communication (Plusquellec and Denault, 2018) and recent developments in AI, affective computing has led to the emergence of powerful algorithms used for the automatic recognition of facial expressions of emotions (Martinez *et al.*, 2019). The scientific applications are already promising, notably in health care, such as detecting the presence of postoperative pain in children (Sikka *et al.*, 2015) or training autistic children to better perceive the emotions of others (Gordon *et al.*, 2014).

Several private companies are also actively developing this technology and demonstrating its potential. For example, Affectiva, Inc., has performed an impressive automatic analysis of frowns and smiles among 740,984 participants watching online advertisements (McDuff *et al.*, 2016), paving the way for massive use of this technology to measure emotional reactions to all types of media (McDuff and el Kaliouby, 2017). Other applications have resulted in systems such as EmotionCues in China, which allows a teacher to have real-time feedback of their group's emotion (Zeng *et al.*, 2021). Most Emotion AI applications need further testing outside of laboratories and within workplace settings. While there has been some negative press related to affective computing, when commercial application is backed by valid research it is a sound choice (Becker *et al.*, 2022; Chen and Hao, 2020). Affective computing also shows potential for HR across several areas of the employee life cycle such as candidate selection (e.g. interviewing via HireVue), training and development and parts of talent management including performance and employee well-being (Becker *et al.*, 2022).

How affective computing can be a human resource tool for workplace well-being

Affective computing now has the technical ability to capture the emotions of an organization's employees in real time from any camera, regardless the size of the organization. We can imagine a scenario where with the help of such a tool, employees can become aware of the emotions they express when in a virtual meeting or when they are at their workstation working on a particular project. This tool would allow employees to link activities and emotions, which is the recipe for well-being according to Daniel Kahneman, Nobel Prize in Economics (Diehl *et al.*, 2011; Kahneman and Krueger, 2006). Emerging research shows that employees are preferring to use technology to address mental health concerns rather than rely on human contact (Newey, 2021). Such a self-administered tool also has the potential to be more accurate and timelier for the organization than a periodic employee engagement or job satisfaction survey driven by management/HR.

If managers or HR leaders have a real-time emotional portrait of teams in the workforce, they could track and support the emotional well-being of their people. Following common events such as onboarding new employees, the restructuring of a department or weeks of intensive work performance, the change in the mood of the group via a dynamic dashboard could be observed. With this information, managers or HR leaders could intervene and likely take appropriate action long before the situation became problematic, thus maintaining a positive emotional culture. They could also efficiently assess the effects of an

action to promote employee well-being, whether that action is installing a nap booth, massage chairs, a gym membership or healthy snacks, because balancing positive and negative emotions is central to the notion of well-being (Diehl *et al.*, 2011; Kahneman and Krueger, 2006).

HR affective computing is already being developed and researched (Becker *et al.*, 2022). An example of this for employee well-being is EmoScienS[1], a tech start-up based in Quebec, Canada, which has taken on developing its affective computing product for organizations in an ethical manner. The company has collaborated with academics in ethics and law who have helped guide its development (Plusquellec and Lirio, 2021). In implementing EmoScienS, only users have access to their data and control over the use. They have the choice at any time to stop measuring their emotions, and the choice to share the results in an aggregated manner or to keep them to themselves. The dashboard that informs users of their results is secure and calculated in real time without any database storage of the displayed results. The results are accompanied by a knowledge base and training programs to equip users with the best scientific knowledge in the field. Finally, managers/HR leaders are accompanied in the deployment of this solution by professional trainers in the field of mental health (Plusquellec and Lirio, 2021). The EmoScienS platform represents a drop in the bucket in the ecosystem of affective computing providers that are going to flood the HR tech market in the coming years. It will be up to each organization and their people to make an informed choice when the time comes, and this situation calls for the responsible implementation of AI in organizations.

Responsible use of artificial intelligence by human resource: guiding principles to making an ethical choice

The emergence of Emotion AI for use by HR poses huge ethical considerations, which need to be addressed. Quebec, Canada, where EmoScienS is based, is a leader in the field of AI ethics, with notable success of this ecosystem being the participatory creation of the Montreal Declaration for a Responsible Development of AI (Dilhac *et al.*, 2018). The Declaration lays out a framework of 10 principles for the ethical development and deployment of AI[2]. HR leaders need to familiarize themselves with the concepts of ethical and responsible technology use and integrate this into their AI strategy. For example, the principle of responsibility implies that the use of such tools should not substitute for a human decision. This implies that under no circumstances should a managerial decision be made solely by the tool, but instead with key players like HR as part of the process (Lirio and Ben Said, 2023). To limit this risk, such tools must prohibit access to individual data. This essential limitation of the implementation of the technology is required also to respect the principle of privacy. Thus, managers will not be able to single out who is most often frustrated in a team, but will see that out of 10 employees in a team, the average frustration level is high. This can then become a key indicator in a strategy to overall emotional well-being in the workplace.

It is recommended, however, that if such tools were to appear in organizations tomorrow, no HR leader demand that employees use them, as this would go against the principle of respect for autonomy. In the same way, only employees themselves should decide when they use a tool that informs them in real time about their emotions, to guarantee the principle of privacy and intimacy (Chen and Hao, 2020). The servers required to run these tools should be located with the third-party vetted vendor to ensure nondisclosure, etc.

Conclusion

HR leaders will quickly come into contact with affective computing tools that allow them to measure their employees' emotions in real time. These new tools have a phenomenal

potential to transform managerial practices, but it will be up to everyone to make an informed choice when the time comes. This calls for awareness of ethical AI principles and implementation of responsible AI practices in organizations to best lay the groundwork for an emotionally healthy workplace.

Notes

1. EmoScienS is committed to the mission of improving emotional health in organizations, in an ethical and caring way, by mobilizing the latest developments in the field of artificial intelligence, automatic measurement of facial expressions and the science of emotions. www.emosciens.com/
2. Other groups and organizations have also published guidelines but are less comprehensive.

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