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Chill, Fiery, Slack, and Five Other Vibes: A Phenomenological Inquiry into Group Mood

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Abstract

Even though group mood has a significant impact on organizational functioning, there is no typology available to describe distinct group moods. We propose that designing products and services to facilitate beneficial group mood experiences requires a granular and experience-oriented understanding of the phenomenon. This article introduces an initial typology of eight group moods using a componential approach. The typology was generated via an exploratory study designed to identify aspects and qualities of group mood experienced in professional settings. We observed real-life meetings of five small workgroups. Group mood perceptions were self-reported in situ and later described collectively in a group session. By categorizing the group mood qualities in participants' descriptions, we developed eight group mood types. This typology aims to facilitate a granular understanding of the group mood phenomenon for designers (practitioners and researchers). We envision this overview of eight group moods as the first step toward developing a systematic knowledge of group mood in the field of design.

Introduction

When working in a group with a collective purpose, whether to generate creative ideas, develop a project plan, or pursue any other goal, people generally aim for fruitful interactions, pleasant collaborations, and effective outcomes. In some group meetings, the atmosphere seems just right, and everyone is on the same page. However, at other times, a feeling of discord and tension may be in the air, standing in the way of effective collaboration. We call this "feeling in the air" *group mood*. Often referred to as a *group vibe*[1] in colloquial English, group mood is the shared affective atmosphere present during group activity.

Group mood[2] has a significant impact on organizational functioning. Studies have shown that it influences group dynamics; the attitudes and behaviors of group members, team functioning, and performance; and creativity.[3] On a more general level, group mood has even been shown to relate to happiness at work[4] Inspired by these research findings, organizations are increasingly seeking ways to stimulate "good office vibes," and *vibe management* is becoming a popular concept in organizational management. In 2014, a company in San Francisco was the first to recruit an official *talent and vibe manager*[5] whose main task was to ensure pleasant office vibes. Today this company has a *vibe squad* — a team responsible for organizing activities to facilitate positive employee interaction, relaxation, and fun at work. This growing interest in developing capabilities to manage group mood in organizations opens new opportunities for experience design. In this context, it is interesting to consider whether design can play a meaningful role in fostering beneficial group moods in work settings.

Designed objects are used to facilitate group mood experiences during all kinds of human activities (Figure 1), such as candles at church, birthday decorations, or disco balls at nightclubs. Through their sociocultural connotations, functions, and sensorial properties, such objects help create the right ambience for group events. Likewise, objects used in office spaces — deliberately or unintentionally — influence group mood. For example, online task

1 Throughout the article, we use the terms "group vibe" and "group mood" interchangeably.

2 In previous research, group mood has mostly been studied as group affect in combination with group mood and group emotion.

3 For a review, see Sigal G. Barsade and Andrew P. Knight, "Group Affect," *Annual Review of Organizational Psychology and Organizational Behavior* 2, no. 1 (2015): 31–36, https://doi.org/10.1146/annurev-orgpsych-032414-111316.

4 Cynthia D. Fisher, "Happiness at Work," *International Journal of Management Reviews* 12, no. 4 (2010): 385, https://doi.org/10.1111/j.1468-2370.2009.00270.x; M. Esther García-Buades et al., "Happy-Productive Teams and Work Units: A Systematic Review of the 'Happy-Productive Worker Thesis,'" *International Journal of Environmental Research and Public Health* 17, no. 1 (2020): 3, article no. 69, https://doi.org/10.3390/ijerph17010069.

Figure 1

Example objects and spaces that facilitate group mood experience in leisure and office settings. (a) Birthday decorations; (b) candles at church; (c) an online task management tool; (d) a coffee corner; (e) a whiteboard; (f) virtual Christmas backgrounds. 1a–1e © 2022 Shutterstock.com. 1f © 2022 Alev Sönmez.

5   Ila Mehrotra Anand and Himani Oberai, "Vibe Manager: The Most Millennial Job Title Ever," *Human Resource Management International Digest* 26, no. 4 (2018): 12, https://doi.org/10.1108/HRMID-03-2018-0044.

6   Examples of such tools are Trello (https://trello.com/) and Asana (https://asana.com).

7   For example, see Mahnoor Sheikh, "22 Best Zoom Backgrounds to Level Up Your Virtual Meetings," *Visme* (blog), last modified January 19, 2021, https://visme.co/blog/best-zoom-backgrounds/.

8   For example, see Haian Xue, Pieter M. A. Desmet, and Steven F. Fokkinga, "Mood Granularity for Design: Introducing a Holistic Typology of 20 Mood States," *International Journal of Design* 14, no. 1 (2020): 1, 11–12, http://www.ijdesign.org/index.php/IJDesign/article/view/3578.

9   Patrick W. Jordan, *Designing Pleasurable Products: An Introduction to the New Human Factors* (London: Taylor & Francis, 2000).

10   Pieter Desmet, "Faces of Product Pleasure: 25 Positive Emotions in Human-Product Interactions," *International Journal of Design* 6, no. 2 (2012): 4, http://www.ijdesign.org/index.php/IJDesign/article/view/1190.

11   Steven F. Fokkinga and Pieter M. A. Desmet, "Ten Ways to Design for Disgust, Sadness, and Other Enjoyments: A Design Approach to Enrich Product Experiences with Negative Emotions," *International Journal of Design* 7, no. 1 (2013): 26–29, http://www.ijdesign.org/index.php/IJDesign/article/view/1180.

12   Pieter M. A. Desmet, Steven F. Fokkinga, and Haian Xue, *Twenty Moods: Holistic Typology of Human Mood States* (Delft: Delft University of Technology, 2020), https://repository.tudelft.nl/islandora/object/uuid:dfb28a77-5b9d-49db-a9b2-4d472e621de2?collection=research.

13   Francisco Travis Gallegos, "The Phenomenology of Moods: Time, Place, and Normative Grip" (PhD dissertation, Georgetown University, 2017), 219, http://hdl.handle.net/10822/1044645.

management tools[6] designed for effective collaboration can support a productive group mood. Coffee corners, designed to support social interactions, can facilitate an amiable group mood. The virtual background tools used during video conference calls can set the tone for a meeting—from clean, modern office backgrounds for a serious vibe to Christmas images for a cozy vibe.[7] Whiteboard walls are commonly used to collectively formulate ideas, thus supporting creative vibes. However, are "productive," "amiable," and "creative" the only group moods experienced in office settings? Which other group moods can be supported through design interventions?

Products, services, and interventions designed to influence group mood or enable its management can bring about new opportunities to enhance group experiences. To the best of our knowledge, there is currently no explicit design knowledge available—as methods, guidelines, and strategies—that supports a systematic approach to design for group moods. Previous work in experience design has shown that an effective first step in developing such design knowledge is to develop typologies that provide a granular understanding of the diversity of the subjective phenomenon at hand.[8] Examples of such typologies developed by design researchers are overviews of pleasurable experiences,[9] positive emotions,[10] rich experiences,[11] and individual mood states.[12] These typologies provide designers with a fine-grained language to recognize and communicate a rich repertoire of affective experiences.

At present, a structured overview of group mood types is not available. To fill that research gap, we propose that such an overview can support both a more nuanced study of group moods and the development of systematic group mood design practices. For this reason, this article introduces an initial typology of group moods. We report on an exploratory study conducted to identify and describe distinct types of group moods in work settings. The main outcome is a descriptive overview of eight group mood types. By providing a nuanced vocabulary to describe group moods, this overview serves as a step in developing a granular understanding of group mood in the field of design.

The following sections briefly report on how group mood has been operationalized in past research and discuss these initiatives from a design research perspective. We then describe the exploratory study conducted to develop group mood types. After this, the results section presents an overview of eight group moods and four aspects that help to identify them. Additionally, findings on group mood dynamics—including changes in uniformity and intensity, and situational factors—are presented. Finally, we discuss the contributions and limitations of our study by drawing on the relevant literature.

Current Group Mood Research

In line with Francisco Gallegos's phenomenological inquiry,[13] we define *group mood* as a global affective atmosphere experienced by group members at a certain point in time during a group activity. Group mood arises in the context of an ongoing collective activity in which group members interact to achieve a shared purpose; it is formed by its particular situational dynamics. Accordingly, we investigated group mood as an emergent collective phenomenon situated in the context of group dynamics.

14 Both in the scientific literature as well as in popular discourse, various terms are used interchangeably to refer to (components of) group affect, including group mood, group emotion, shared emotion, emotional energy, emotional atmosphere, and emotional climate. Jochen I. Menges and Martin Kilduff, "Group Emotions: Cutting the Gordian Knots Concerning Terms, Levels of Analysis, and Processes," *Academy of Management Annals* 9, no. 1 (2015): 849, https://doi.org/10.1080/19416520.2015.1033148.

15 Jennifer M. George, "Personality, Affect, and Behavior in Groups," *Journal of Applied Psychology* 75, no. 2 (1990): 108, https://doi.org/10.1037/0021-9010.75.2.107.

16 Menges and Kilduff, "Group Emotions," 851.

17 Caroline A. Bartel and Richard Saavedra, "The Collective Construction of Work Group Moods," *Administrative Science Quarterly* 45, no. 2 (2000): 207, https://doi.org/10.2307/2667070.

18 For a brief review of individual versus collective level analysis in group research, see Donelson R. Forsyth, *Group Dynamics*, 6th ed. (Belmont, CA: Wadsworth Cengage Learning, 2014), 19–21.

19 The study by Bartel and Saavedra suggests that individual moods can converge in any of the eight mood domains in the circumflex affect model, therefore the same eight domains correspond to both individual and group moods. Note that to ensure that self-reports can be aggregated to a group level, researchers use complementary measures of within-group agreement. Bartel and Saavedra, "Collective Construction," 214.

20 For example, separate studies have shown that positive group moods increase creative task performance and team satisfaction. For creative task performance see Annefloor Klep, Barbara Wisse, and Henk van der Flier, "Interactive Affective Sharing versus Non-interactive Affective Sharing in Work Groups: Comparative Effects of Group Affect on Work Group Performance and Dynamics," *European Journal of Social Psychology* 41, no. 3 (2011): 320, https://doi.org/10.1002/ejsp.775; and for team satisfaction, see Nai-Wen Chi, Yen-Yi Chung, and Wei-Chi Tsai, "How Do Happy Leaders Enhance Team Success? The Mediating Roles of Transformational Leadership, Group Affective Tone, and Team Processes," *Journal of Applied Social Psychology* 41, no. 6 (2011): 1444, https://doi.org/10.1111/j.1559-1816.2011.00767.x.

21 Xue et al., "Mood Granularity," 3.

Note that group mood falls within the broader category of group affect,[14] including all "consistent or homogeneous affective reactions within a group."[15] Accordingly, group affect includes both momentary shared emotional reactions (group emotion) and more pervasive shared mood experiences (group mood). Unlike group emotions, group mood is not a direct reaction to a particular stimulus — it corresponds to a group's general undercurrent in the absence of a specific trigger.[16]

In the current literature, there is no group mood typology available to inform the design discipline. To date, group mood has mainly been studied in the organizational sciences and psychology. The research in these domains typically adopts a dimensional approach with a primary focus on the general pleasure dimension, using a basic pleasant-unpleasant or positive-negative distinction. We found one study that added a second dimension (activation), and distinguished group mood with the eight general affect domains of the circumplex model of affect.[17] Moreover, following the individualistic approach common in group research,[18] group mood is typically determined by measuring individual mood scores through self-report. The mean value is used to represent the group mood.[19]

While the dimensional approach is useful for studies exploring the impact of group mood on behavior and other phenomena,[20] a categorical approach is considered more suitable for experience design research because it provides relevant contextual and experiential details.[21] Like emotion,[22] group mood is more nuanced and diverse than can be captured with the labels "good" or "bad."[23] Imagine team A engaged in an afternoon-long creative session, versus team B finalizing a last-minute concept presentation for a client. While a cheerful-imaginative group mood may emerge in team A, a resolute-focused mood may prevail in team B. Although both group moods may be experienced as "positive," they are essentially different regarding how they manifest, what causes them, and their effects on the group work. This difference implies that they also represent different design opportunities and challenges. A design intervention that supports unconventional interactions may strengthen the imaginative vibe for team A. But implementing that same intervention in team B may be disruptive and stimulate a counterproductive-nervous vibe. Instead, team B may benefit from a design intervention that minimizes unnecessary distractions and supports a focused vibe. Therefore, design can benefit from a categorical and descriptive group mood typology.

Nuanced typologies of individual moods are available in design research. An example is the *holistic typology of twenty mood states*, which describes each mood with six aspects, four illustrative images, and an example real-life situation.[24] This typology was developed to provide a granular understanding of mood in the design field by painting a narrative picture of twenty individual mood types. While that work is a good example, we propose that such a typology of individual moods is not directly applicable to describing group moods because it does not capture group-level properties of an experience. "Teams don't behave, individuals do; but they do so in ways that create team level phenomena."[25] The interactive, dynamic, and normative nature of a group context plays an essential role in the emergence of the group mood.[26] Therefore, group mood may carry unique group-level characteristics[27] that bring new design

22 James A. Russell, "Core Affect and the Psychological Construction of Emotion," *Psychological Review* 110, no. 1 (2003): 154, https://doi.org/10.1037/0033-295x.110.1.145; Pieter Desmet, "Designing Emotions" (PhD dissertation, Delft University of Technology, 2002), 16, available at https://www.researchgate.net/publication/261873583_Designing_Emotions.

23 Lauren Freeman, "Toward a Phenomenology of Mood," *The Southern Journal of Philosophy* 52, no. 4 (2014): 459, https://doi.org/10.1111/sjp.12089.

24 Desmet et al., *Twenty Moods*.

25 Steve W. J. Kozlowski and Bradford S. Bell, "Work Groups and Teams in Organizations," in *Industrial and Organizational Psychology*, vol. 12 of *Handbook of Psychology*, 2nd ed., ed. Neal W. Schmitt and Scott Highhouse (Hoboken, NJ: Wiley-Blackwell, 2013), 415, available at https://psycnet.apa.org/record/2012-28468-017.

26 Gallegos, "Phenomenology of Moods," 205.

27 Ibid., 219.
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28 For a multi-componential approach in emotion typology, see JungKyoon Yoon, Anna E. Pohlmeyer, and Pieter Desmet, "When 'Feeling Good' Is Not Good Enough: Seven Key Opportunities for Emotional Granularity in Product Development," *International Journal of Design* 10, no. 3 (2016): 2, 8, http://www.ijdesign.org/index.php/IJDesign/article/view/2338; for the same in mood typology, see Xue et al., "Mood Granularity," 3.

29 Freeman, "Toward a Phenomenology of Mood," 459; Clark Moustakas, *Phenomenological Research Methods* (Thousand Oaks: Sage Publications, 1994), 14.

30 The multistep procedure also involved a lexical approach and researcher introspection method. Xue et al., "Mood Granularity," 3–4.

31 Moustakas, *Phenomenological Research Methods*, 57.

32 Reed Larson and Mihaly Csikszentmihalyi, "The Experience Sampling Method," in *Flow and the Foundations of Positive Psychology: The Collected Works of Mihaly Csikszentmihalyi* (Dordrecht, NL: SpringerScience+Business Media, 2014), 21, https://doi.org/10.1007/978-94-017-9088-8.

33 Ibid., 23.

34 Co-inquiry is a process in which a group of people jointly define and explore an issue or a question that is important for them. Sarah Banks et al., "Using Co-inquiry to Study Co-inquiry:

opportunities and challenges. For example, while a guided meditation app can stimulate a productive mood for an individual, it may be less effective for creating a calm group mood. Designing a ritual that uplifts team spirit requires a collective lens that incorporates interpersonal behaviors and values.

Accordingly, we aim to develop a categorical group mood typology. The following criteria guided our inquiry:

1   The typology should describe the rich experiential qualities of distinct group mood types with multiple aspects. The multi-componential approach is considered useful for providing holistic descriptions of complex subjective phenomena in the design field.[28]

2   It should describe group moods from a collectivistic lens. Therefore, we do not take typologies of individual mood states as a starting point. Instead, we intend to identify unique types by incorporating group-level properties of group mood.

Study

We conducted an exploratory study to gain an understanding of types of group mood experienced in real-life group settings. The objective of the study was twofold: (1) to identify the components that help us distinguish different types of group mood, and (2) to identify and describe distinct types of group mood. The main research question was as follows: What types of group moods are experienced in small workgroups? We formulated the following sub-questions to guide our investigation: (a) What types of group mood can be distinguished? and (b) what aspects or qualities can be used to describe and distinguish the types in a comprehensive way?

In that study, we adopted a phenomenological approach, which takes the original descriptions of lived experiences as a primary source of complex and multimodal mood experiences.[29] This approach successfully revealed a set of rich and nuanced moods used to develop the *holistic typology of twenty mood states*.[30] The descriptions of twenty mood states were based on real-life mood samples collected through a two-week mood diary exercise. The phenomenological lens is also particularly suited to investigating intersubjective phenomena such as group mood. It allows individuals to construct a shared meaning by testing and extending each other's understanding.[31] Accordingly, our study was designed to gather collective descriptions of real-life group mood experiences.

Method

We used experience sampling and co-inquiry methods to collect and collectively interpret the data. Experience sampling is "a research procedure for studying what people do, feel, and think during their daily lives."[32] It refers to capturing people's self-reported, subjective experiences within the context of daily life. The idea is to obtain reports about the experience as it occurs, thereby minimizing memory reconstruction.[33] In this study, group members self-reported their group mood during their actual meetings. Immediately after the meetings, they examined, discussed, and synthesized their individual perceptions of the group mood in a co-inquiry[34] session. We used

Community-University Perspectives on Research," *Journal of Community Engagement and Scholarship* 7, no. 1 (2014): 38, article no. 5, available at https://digitalcommons.northgeorgia.edu/jces/vol7/iss1/5. This joint inquiry is a common ingredient for participatory design (and research) processes, such as co-design. Marc Steen, "Co-design as a Process of Joint Inquiry and Imagination," *Design Issues* 29, no. 2 (2013): 27, https://doi.org/10.1162/DESI_a_00207.

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35 Guided introspection is a well-accepted research technique, wherein the researcher guides the participants to examine and report their experiences. Haian Xue and Pieter M. A. Desmet, "Researcher Introspection for Experience-Driven Design Research," *Design Studies* 63 (2019): 38, 46, https://doi.org/10.1016/j.destud.2019.03.001.

36 Generative techniques are commonly used to enable participants to express latent details of their everyday life. Elizabeth B. -N. Sanders and Pieter Jan Stappers, *Convivial Toolbox: Generative Research for the Front End of Design* (Amsterdam: BIS, 2012).

37 Acknowledging participants as co-researchers can benefit the research process, as it stimulates a collaborative and equal atmosphere. For example see, Xue et al., "Mood Granularity," 4, 13.

38 The strategy suggests selecting participants based on predetermined criteria. Natasha Mack et al., *Qualitative Research Methods: A Data Collector's Field Guide* (Research Triangle Park: Family Health International, 2005), 5.

guided introspection[35] and generative techniques[36] to facilitate participants' joint creation of group mood descriptions. Because the participants were acknowledged as co-researchers,[37] they were actively engaged in generating, collecting, and interpreting the raw data.

Participants

The study was conducted with five small workgroups performing ongoing group projects at the Faculty of Industrial Design Engineering at Delft University of Technology. All were multidisciplinary teams with expertise in design. One of the groups was a team of academic staff who met regularly for organizational tasks. Other groups were ongoing student design teams working on semester-long group assignments.

The purposive sampling strategy was used to recruit participants.[38] To observe as many group mood experiences as possible, we created sampling criteria based on factors that positively correlate with mood convergence: interaction, membership stability, interdependence,[39] and group size.[40] Accordingly, we selected groups that regularly work on an ongoing project (high membership stability) and meet physically (high interaction). At the time of the study, the participating groups had been working together for a minimum of two months (high membership stability). No group operated with assigned hierarchical roles (to prevent the leader effect).[41] We deliberately observed meeting sessions that involved collective interaction, such as planning, brainstorming, or analysis sessions (high interaction). There is no consensus on the optimal group size for group mood emergence. Yet, when groups consist of more than six people, they are less likely to develop mood homogeneity because of less interpersonal interaction.[42] Since co-creation sessions work well with five or six people groups,[43] we observed groups with a minimum of three[44] and a maximum of six people. Table 1 gives an overview of the profile of the participant teams. The study method required participants to express the experiential aspects of their group work as genuinely as possible. Therefore,

Table 1			Participant team profiles: group number, group size, participants (coded), team profile, task types observed in each study session.		
	Group Size [n]	Participants (Initials & Group No.)	Team Profile	Session 1 Task Type	Session 2 Task Type
Group 1	4	R1, S1, M1, J1	Employee task team	Planning	Not applicable
Group 2	3	R2, M2, I2	Student project team	Analysis	Analysis
Group 3	5	AL3, AD3, P3, K3, J3	Student project team	Brainstorming	Presentation & information exchange
Group 4	6	M4, E4, G4, A4, T4, R4	Student project team	Brainstorming & decision making	Concept development
Group 5	5	E5, W5, S5, M5	Student project team	Individual feedback & user test planning	Not applicable

39 Bartel and Saavedra, "Collective Construction," 203.

40 Jennifer M. George and Arthur P. Brief, "Feeling Good-Doing Good: A Conceptual Analysis of the Mood at Work-Organizational Spontaneity Relationship," *Psychological Bulletin* 112, no. 2 (1992): 321, https://doi.org/10.1037/0033-2909.112.2.310.

41 Studies on leader effect suggest that in groups with hierarchical structures, leaders transmit their moods to other individuals, and thereby can manipulate the group mood profoundly. For example, see Thomas Sy, Stéphane Côté, and Richard Saavedra, "The Contagious Leader: Impact of the Leader's Mood on the Mood of Group Members, Group Affective Tone, and Group Processes," *Journal of Applied Psychology* 90, no. 2 (2005): 302, https://doi.org/10.1037/0021-9010.90.2.295.

42 Janice R. Kelly, "Mood and Emotion in Groups," in *Blackwell Handbook of Social Psychology: Group Processes*, ed. Michael A. Hogg and Scott Tindale (Malden, MA: Blackwell, 2001), 176.

43 Sanders and Stappers, *Convivial Toolbox*, 158.

44 Forsyth, *Group Dynamics*, 4.

participation was a voluntary and well-informed choice. Upon completing the study, each team received a gift voucher as compensation for their time.

Procedure and Research Materials

The study comprised two main parts: (1) self-reporting, followed by (2) a co-inquiry session. Each team participated in the study separately, at their usual meeting locations. Three of the teams participated in the study twice—in other words, they followed the same procedure in two different meetings. In total, eight group meetings were observed, and a co-inquiry session followed each meeting. Table 2 gives an overview of the study procedure. Upon participants' consent, actual meeting sessions were video recorded, and co-inquiry sessions were audiotaped.

Sensitizing Participants to Group Mood Phenomenon

Before the study, participants were introduced to the following definition of *group mood*: "a general emotional atmosphere experienced by group members in a specific time of group practice." To sensitize the participants to the notion, they were given two example situations. One described an unpleasant atmosphere: "Imagine you meet your colleagues for a project planning meeting. After about half an hour, you feel that the group is getting less and less enthusiastic about coming up with tangible solutions. People are approaching each other's ideas critically. You cannot really name it, but you can feel tension in the air, and this seems to capture the group's vibe."

Table 2   **An overview of the study procedure: time and duration, activities, and research materials in every step of the procedure.**

Study Steps	Time & Duration	Activities	Research Materials
Preparation	Immediately before the study, 15 minutes	The researcher • explained the study procedure, • introduced the group mood definition with a real-life example, and • set up the recording devices.	Not applicable
Part 1: Self-reporting	During the actual group meeting, for 1.5 hour	• The group conducted their meeting session as usual. • The researcher took observation notes and announced the time to self-report. • Participants reported their individual group mood perceptions (three times).	The vibe pyramid and self-report cards
Part 2: Co-inquiry	Right after the actual group meeting, for 1 hour	With the facilitation of the researcher, the group • discussed the individual group mood perceptions and constructed group mood descriptions collectively, • extracted key words from collective descriptions, • identified the distinct types of group mood, and • discussed the potential factors relating to experienced group mood types.	Sections of the self-report cards and a facilitation template
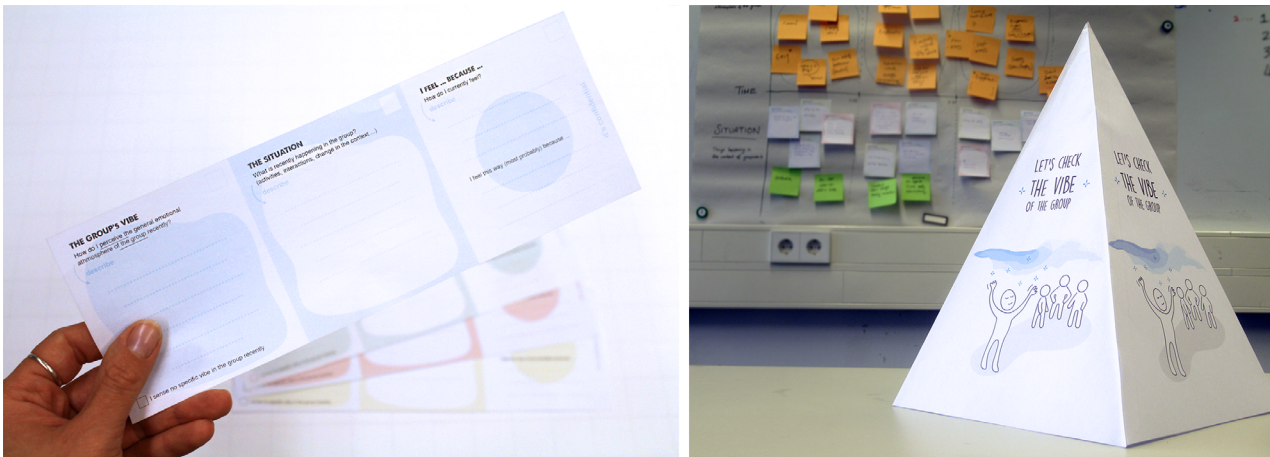
Figure 2
Research materials used for self-reporting: self-report cards (left) and the intervention probe (right). Images © 2022 Alev Sönmez.

Part 1: Reporting Individual Group Mood Perceptions

During the actual group meeting, participants reported their group mood perception every 30 minutes: three times in total. An intervention probe—the vibe pyramid—was used to invite participants to report (Figure 2). Participants were instructed to briefly interrupt their meeting activities and individually fill in a self-report card every time the researcher put the pyramid on the table. The self-report card consisted of three parts (Figure 2). The first section asked participants to describe their individual perception of the group mood using a couple of key words. Participants were allowed to leave this section empty if they did not sense a specific group mood at that moment. The second section asked them to describe what had been happening in their situation. The third section invited them to report their individual feelings (emotional, cognitive, and physical state) right then. The first two sections served as input for the co-inquiry session (Part 2), while the third section was confidential. Table 3

Table 3   **A sample self-report card from participant J31.**

| Self-Report Card Sections (Titles followed by guiding questions)	Participant's Reporting
1. The group's vibe *How do I perceive the general emotional atmosphere of the group recently?*	"Everyone is motivated, positive, and critical in a good way. Yet the energy levels are preventing inspiration somewhat."
2. The situation *What is recently happening in the group (activities, interactions, changes in the context)?*	"Recapping insights and summarizing [with a view] towards [forming] a question. Writing on the whiteboard while standing around with the team."
3. I feel … because … *How do I currently feel?* *I feel this way (most probably) because …*	"I'm quite content with the progress we are making because we have had much more inefficient sessions."

Note: Participants are referred by anonymized codes: initials + group number + session number.

shows a participant's self-report. The participants' cards all had a different color, which made it possible to track the reporting back to each individual. The researcher observed the meeting during the session, which helped sensitize her to the context so that she could ask relevant facilitation questions during the upcoming co-inquiry session.

Part 2: Creating Collective Group Mood Descriptions

After the actual group meeting, each team attended a co-inquiry session. The session was facilitated by the researcher who had been present during the meeting, and the participants were acknowledged as co-researchers. Before the session, the researcher collected the completed self-report cards and affixed each section inside a designated space on the facilitation template (Figure 3, a and b). The situation sections of the cards were first read aloud, helping participants remember the context of that phase of the meeting. Then everyone read the group vibe sections and discussed how they individually perceived the group mood. The researcher guided the discussion towards identifying commonalities and distinctions in their experience by asking questions. Afterwards, group members together identified keywords to describe their group mood. The researcher wrote the collectively agreed-upon descriptive words on sticky notes (Figure 3, c). This process was repeated for each phase of the meeting in chronological order. After, the group reflected on their meeting overall and identified distinct group mood types within their collectively generated descriptions. The session was finalized with general remarks on the group moods identified.

Figure 3
The co-inquiry template: the (a) individually reported situation, (b) individually reported group mood perceptions, and (c) collectively generated group mood descriptions on sticky notes affixed to the facilitation template. © 2022 Alev Sönmez.
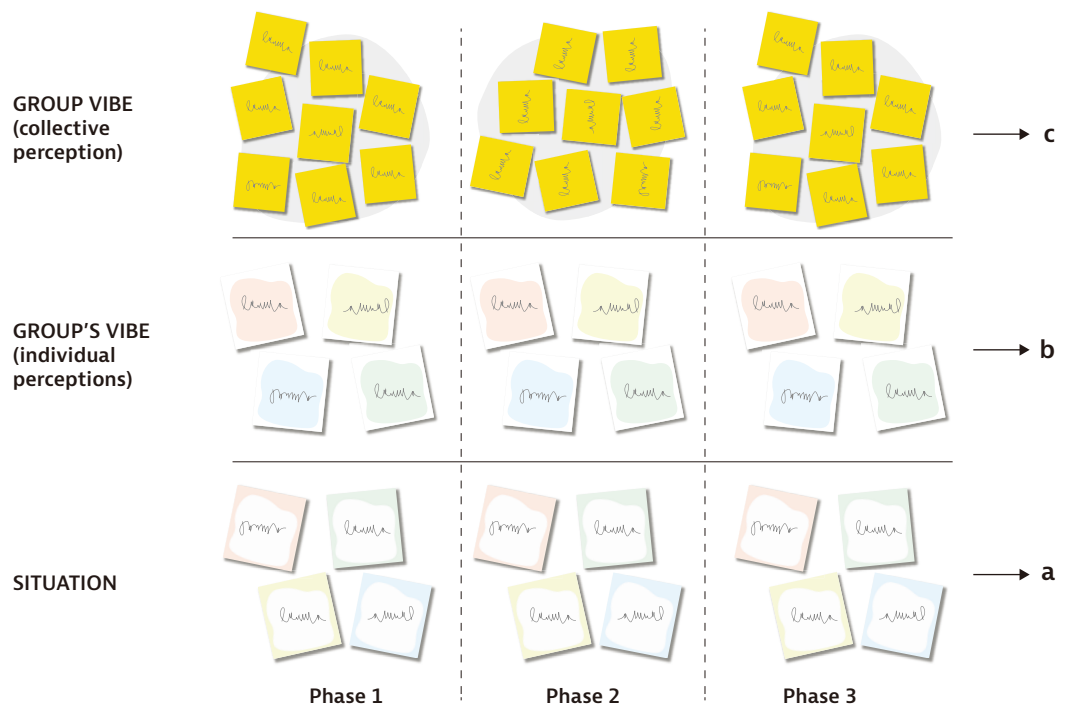
45 Virginia Braun and Victoria Clarke, "Using Thematic Analysis in Psychology," *Qualitative Research in Psychology* 3, no. 2 (2006): 79, available at https://www.tandfonline.com/doi/abs/10.1191/1478088706qp063oa.

46 Ibid., 83.

47 Virginia Braun and Victoria Clarke, "Can I Use TA? Should I Use TA? Should I Not Use TA? Comparing Reflexive Thematic Analysis and Other Pattern-Based Qualitative Analytic Approaches," *Counselling and Psychotherapy Research* 21, no. 1 (2020): 39, https://doi.org/10.1002/capr.12360.

48 Matthew B. Miles and A. Michael Huberman, *Qualitative Data Analysis: An Expanded Sourcebook*, 2nd ed. (Thousand Oaks: Sage Publications, 1994), 11.

Data Analysis

We used thematic analysis to identify and interpret patterns within the data. Thematic analysis is a common qualitative analysis method used to organize and describe qualitative data in rich detail.[45] Our thematization was essentially inductive — we based our themes primarily on the codes that emerged from the data without adhering to a pre-existing theory or model.[46] Overall, it was a reflexive, highly iterative, organic process.[47] Most steps were carried out by the first author, while two peers were involved in the theme development and revision processes. This collaboration enabled the group to obtain intersubjective consensus on and verification of the findings.[48]

Our dataset consisted of anonymized transcripts of recordings of co-inquiry sessions (10 hours in total). The transcripts included participants' interpretations and descriptions of the group moods they had experienced, an explanation of their word choices, and discussions about which feelings truly constitute a group mood. The goal of the analysis was threefold: (1) to identify aspects and qualities of group mood, (2) to identify group mood types, and (3) to create comprehensive descriptions for each type.

Step 1: Defining Themes of Group Mood Qualities

Firstly, we deconstructed participants' group mood descriptions. We extracted quotes (data segment) that described a group mood and labelled each quote with one or more qualifier words mentioned within (semantic codes). Exceptionally, in 15% of all cases, the data segment described a feeling without mentioning a clear descriptive word. In such cases, we used existing codes and introduced six new words to label the data segment (latent codes). A total of 247 data segments were coded by 143 qualifier words. Through a series of iterations, these words were clustered into 36 subthemes, categories of similar qualifier words, which we labelled *group mood qualities*. We saw that these qualities describe different aspects of group mood. For example, the word *hasty* might describe how group members perform their duties, while *calm* could describe what the group members feel subjectively. Accordingly, we clustered the qualities into four themes, each representing an overarching descriptive aspect of group mood: (1) the feeling aspect, (2) the interpersonal aspect, (3) the workflow aspect, and (4) the motivational aspect. Table 4 is an excerpt of the complete thematization process: from quotes to a theme. The complete list of group mood qualities grouped under each of these four aspects is available in Appendix A.

We also encountered some factors influencing group mood during our analysis. These factors are grouped into four categories: (1) activity, (2) setting, (3) group life, and (4) individual state, and are reported as additional findings in the results section.

Step 2: Identifying Group Mood Types

In this step, we created constellations of group mood qualities that identify a group mood type. Following a categorical approach, we asked ourselves,

Table 4	The group mood quality "uncertain" (c) emerged from the clusters of coded (b) data segments (a), and it is grouped under the describing aspect "feeling" (d).			
d. Theme: Describing Aspect [n: 4]	c. Subtheme: Group Mood Quality [n: 36]	b. Code: Qualifier Words [n: 143]	a. Data Segment: (Participant Descriptions) Text [n: 247]	Source
Feeling	1. Uncertain	Unsure	"Maybe, in the beginning, we were not sure — 'Oh timeline … what should we do with the timeline?' But then it became more clear to us."	1–1
		Unclear*	"Maybe we were all just a little bit 'we don't really know what we are doing.'"	4–1
		Fuzzy	"I think it was a bit fuzzy. I do think we were all a bit fuzzy and a bit trying to make sense … Like I was almost there, but I couldn't grasp it."	3–2
		Lost	"At the beginning of this session, we are a bit getting into the rhythm and we are all a bit … a bit lost."	3–2
		Confused	"At the start, I felt we were calm, but we were a bit confused how to schedule, how to make it systematically happen for this analysis. A bit confused and struggling."	2–2
		Uncertain	"In the beginning, we all seemed a little bit worried: 'How is it going to finish today?' Because … in the beginning, you don't know, you are not sure. You are uncertain."	1–1
		Doubtful	"For me, maybe I doubted a bit because I was like, 'Okay. It was just a suggestion.' I was not sure. how it would turn out. So, I was like, 'Okay, I hope it works now.'"	2–1

* Indicates a latent code.

49   Carol M. Megehee and Arch G. Woodside, "Creating Visual Narrative Art for Decoding Stories That Consumers and Brands Tell," *Psychology & Marketing* 27, no. 6 (2010): 603–8, https://doi.org/10.1002/mar.20347.

"Which of these qualities in combination define a group mood type?" A core criterion was the inclusion of at least one quality from each of the four aspects. At this stage, revisiting participants' group mood descriptions in the transcripts helped us create meaningful quality constellations. The results section provides details on the categorization process.

Step 3: Describing Group Mood Archetypes

In this step, we created descriptions portraying each group mood based on the feeling aspect, the interpersonal aspect, the workflow aspect, and the motivational aspect. The qualifier words in the constellations were the basis of our descriptions. We also included synonyms to bring richness and detail to the descriptions. At this stage, frequently revisiting the transcripts helped us create experience-oriented and recognizable descriptions. In addition to the text, we created illustrations of each group mood, as narrative visuals are useful for effectively communicating subjective experiences.[49]

50   These words are extracted from the descriptive text and they correspond to the qualities identifying the group mood type. Some keywords are synonyms of these qualities.

51   Alev Sönmez, Pieter Desmet, and Natalia Romero Herrera, *Eight Group Vibes: A Descriptive Typology of Group Mood*, 2nd ed. (Delft: Delft University of Technology, 2022), available at https://diopd.org/eight-group-vibes/.

Results

Our exploratory study looked into group mood experienced in real-life project groups. The objective of the study was to identify and describe distinct types of group moods in professional settings. In addition, we aimed to gain an understanding of identifying aspects and distinguishing qualities of group mood. Group members' collective descriptions of their recently experienced group moods provided us with rich ingredients for developing an initial typology. This results section first presents an overview of the eight group moods and the four aspects we used to define and describe them. After that, we report on our additional findings regarding group mood dynamics.

Overview of Eight Group Moods

This study identified eight group mood types: chill flow, fiery, fuzzy, creative, tense, confrontational, slack and jolly. Each group mood is a unique constellation of group mood qualities relating to four descriptive aspects. In order to apply to design research, each group mood is described with (a) a title and key words,[50] (b) a colloquial expression, (c) a comical illustration representing the group mood during a moving day-themed group activity, and (d) a text describing the experience based on four aspects in a hypothetical group setting. Note that the eight group moods are described as archetypes: they represent extreme manifestations. In reality, these types can be experienced in milder forms or combinations. As an example, Figure 4 shows the descriptions of two group moods. The complete typology is available online in a booklet titled *Eight Group Vibes*.[51]
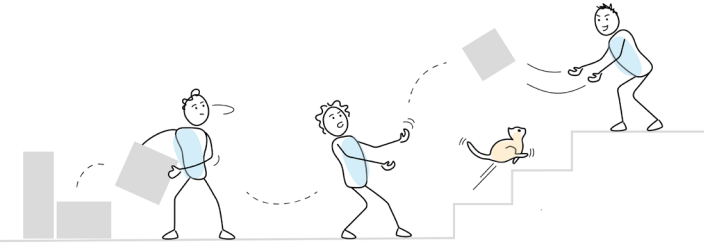
Four Aspects for Identifying Group Mood Types

Participants reported that different types of group moods were associated with various qualities. The group mood was often described in the form of word combinations simultaneously referring to multiple aspects of the experience. For example, "rushed but open-minded" (I21) describes a fast-paced work style and a mindset of being open to new perspectives. Another example, "determined to make it work, more serious, organized, positive view on our project" (A42), refers to a serious and organized way of working and a determined and optimistic group feeling. Similarly, the description "energetic; everyone is actively participating, positive, no bashing ideas" (A42) refers to energy and active participation and open interpersonal interaction. Likewise, "nice, friendly, hopeful, proactive … still discovering, experimenting" (I21) refers to a content feeling, an explorative working style and friendly interactions. These findings suggest that group mood is a complex, multifaceted experience that might be described on the basis of four main aspects: (1) the feeling aspect, (2) the interpersonal aspect, (3) the workflow aspect, and (4) the motivational aspect. Table 5 gives an overview of these four aspects, with a description and two example qualities mentioned in participant quotes.

The participants' descriptions show that these four aspects are interrelated, not mutually exclusive. For example, feeling nervous due to a deadline, one group worked hastily (3-1). A group with a goal-oriented mindset adopted

FIERY

Ready to take on the world

CLEAR-MINDED, EAGER, ACTIVE, DIRECTIVE, TOGETHER, ENCOURAGING, HASTY, SMOOTH, VIGOROUS, SERIOUS

Feeling

The group members feel energetic, clear-minded and highly enthusiastic towards reaching the collective goal. With feelings of confidence in overcoming challenges, they are eager to act. They are optimistic and excited about future challenges and opportunities, and there is no room for negative thinking.

Interpersonal

The group members cooperate efficiently, and they tend to encourage each other by giving motivational speeches, recalling their past accomplishments or portraying future success. For the sake of efficiency, they may communicate in directive ways. It is crucial to act together. Their motto is 'We can do it!'

Workflow

The group members work in a serious and dedicated manner, using all the resources to the fullest. They face mishaps head-on without wasting time on hesitation or reflection. The hardships never discourage the group, rather stir up vigour.

Motivational

The group members are driven by the premise of success, glory and acknowledgement. No matter what it takes, they strive to achieve good results.
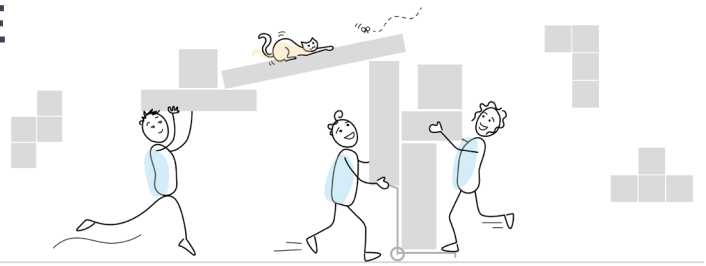
2

CREATIVE

Get the juices flowing

ENTHUSIASTIC, INSPIRED, FREE, OPEN-MINDED, RECEPTIVE, ENCOURAGING, EXPLORATIVE, LIGHT-HEARTED, PLAYFUL

Feeling

The group members feel enthusiastic and ready to be inspired. They are physically active and mentally energised. They also feel comfortable and free to explore new ideas. Uncertainty is embraced and perceived as a liberating opportunity for discovering novel ideas. They tend to have a highly optimistic and exciting view of the future.

Interpersonal

The group members are friendly, open-minded and receptive. Everyone feels comfortable expressing their opinions transparently. They listen to each other attentively in a non-judgmental way. In a joint effort to create, they constructively build upon each other's ideas. Acting in unusual ways and proposing unrealistic ideas are tolerated and even encouraged.

Workflow

The group members work in an explorative and light-hearted manner. They are open to any new and interesting input, and their minds idle freely within the diverging alternatives. Feeling an urge to test ideas, they may perform quick experiments. There is room for humour and playfulness, which can serve as a source of inspiration.

Motivational

The group members want to go beyond the existing solutions and boundaries. The purpose here is not to find an ultimate solution, but rather to think alternatively.

4

Figure 4
The descriptions of "fiery" and "creative" group moods, extracted from the *Eight Group Vibes* booklet. © 2022 Alev Sönmez, Pieter M. A. Desmet, and Natalia Romero Herrera.

Table 5   **The four identifying aspects of group mood types with definitions, two example qualities and corresponding participant quotes.**

Identifying Aspects	Example Group Mood Qualities	Example Participant Quotes
Feeling Aspect It describes how it subjectively feels to be in a group mood. This includes bodily and mental feelings.	Eager	We were eager to find an idea, eager to find something that was not there yet, at that time (4–2).
	Nervous	Since we had this thing in the afternoon [field study], we obviously felt a bit nervous (5–1).
Interpersonal Aspect It describes how group members relate to each other in a group mood. This includes how group members interact and respond to each other.	Broad-minded	Everyone was super open to hearing what each other felt up to saying. Just a very relaxed and open mentality towards each other (3–2).
	Defensive	Everyone had a clear opinion and they were not always the same. People were obviously trying to defend their own opinions (3–1).
Workflow Aspect It describes how group members conduct the tasks and perceive the workflow in a group mood.	Smooth	It went rather smooth. It doesn't often happen that smooth, so easily without moving everything around in the process (3–1).
	Chaotic	I was a bit more chaotic than before, less structured and I felt easily distracted (4–2).
Motivational Aspect It describes what group members are mainly concerned about in a group mood. These are grouped under two overarching categories.	Goal-oriented	We don't want to waste time; we want to achieve something (1–1).
	Process-oriented	We want to make progress but just kind of "See where it goes," and that's fine (3–2).

a serious working style (e.g., 4-2). Similarly, multiple qualities of each aspect were often mentioned together to describe a group mood. For example, two groups (1-1 and 3-1) reported an uncertain feeling accompanied by low energy. Another group (5-1) described their group mood as supportive and inclusive, both referring to the interpersonal aspect. This overlap suggests that certain group mood qualities accompany each other in a specific type of group mood. Although a single aspect can give an idea (e.g., smooth or tired group mood), a combination of aspects is necessary in order to render a holistic description of group mood. By creating meaningful combinations of qualities from each aspect, we developed eight types of group mood. As an example, fiery and creative are two distinct group mood types sharing four qualities: enthusiastic, active, encouraging, and collaborative. Table 6 shows these two group mood types and the linking qualities from each aspect. The complete list is available in Appendix B.

Preliminary Knowledge on Group Mood Dynamics
Changes in Type, Intensity, and Uniformity
Participants described group mood as a dynamic phenomenon rather than a static state. While describing group mood during the different phases of the meeting, participants frequently mentioned a change in group mood qualities. For example, in one meeting (4-1), the group mood shifted from giggly and playful to serious. This shift indicates that the qualities of group mood may be in constant flux during an activity. A dramatic change in qualities can yield a new group mood type. However, type was not the only fluctuating

Table 6   **Fiery and creative group mood identified as the combinations of listed qualities from four aspects.**

Group Mood Types	Group Mood Qualities			
	Feeling Aspect	Interpersonal Aspect	Workflow Aspect	Motivational Aspect
FIERY	(2) Clear-minded	(14) Directive	(26) Hasty	(36) Goal oriented
	(7) Enthusiastic	(17) Connected	(27) Smooth	
	(9) Eager	**(19) Encouraging**	(30) Vigorous	
	(10) Active	**(20) Collaborative**	(33) Serious	
CREATIVE	(1) Uncertain	(16) Receptive	(25) At ease	(35) Process-oriented
	(5) Chill	**(19) Encouraging**	(28) Chaotic	
	(7) Enthusiastic	**(20) Collaborative**	(31) Explorative	
	(10) Active	(22) Friendly	(32) Playful	

Note: Shared qualities are marked bold.

property. Participants also reported changes in the intensity and the homogeneity of the group mood.

Intensity refers to how strongly group mood is experienced during the meeting. None of the participants reported a no-vibe situation, but some participants reported having difficulty describing the group mood due to its low intensity. Three participants (M11, I22, K31) described their group mood as "flat" or "neutral" with no particular characteristics. Two participants (AL32, M11) mentioned that they were "still getting into the rhythm," meaning that the group mood was not fully felt yet. "Flat vibes" were reported mainly at the beginning of group meetings or during non-interactional episodes in the context of individual tasks, for example. These results indicate that a group mood gradually emerges and that its intensity can increase or decrease during a meeting.

Uniformity refers to the extent a group mood is experienced similarly among the group members in a meeting. Most groups identified a uniform group mood, meaning all the group members described it with similar qualities. Nevertheless, divergent experiences were reported too. In one group (4-2), participants were divided in their descriptions of the group mood. Half of the group members reported experiencing an enthusiastic and energetic group mood, while the other half felt tired, distracted and reluctant to participate. The majority of another group (3-2) reported a chill and calm group mood, yet one group member described it as "excited." She was considered "out of the vibe" by the rest of the group. These differences indicate that the uniformity of group mood can fluctuate during a meeting. Multiple group moods can be experienced simultaneously in subgroups. When only a few members experience a different group mood, the majority's experience seems to define the group mood.

Situational Factors Influencing Group Mood

Participants mentioned various situational factors playing a role in their group mood dynamics. We grouped these factors into four categories:

Table 7   **The four categories of situational factors influencing group mood.**

Factor Categories	Situational Factors
Activity-related factors	Task type, shared goals and expectations, sense of urgency, match between task and group size
Setting-related factors	Physical space, products, time, meeting type
Group life	Trust, shared interests, compatible personalities, matching backgrounds, good communication, team bond
Individual states	Individual mood, energy level, concentration level, engagement level

activity-related, setting-related, group life, and individual state. Table 7 gives an overview of these factors.

Activity-related factors: Participants usually reported fluctuations in the group mood around the time the task had changed. They also mentioned the type of task, shared goals and expectations, sense of urgency, and match between task and group size as activity-related factors. Some participants described the group moods through task qualities—one participant used the words "convergent" and "divergent" to compare the group moods in a planning task and a brainstorming task (3-1), for example. These findings suggest that certain types of group moods may be associated or even expected when it comes to certain types of actives.

Setting-related factors: It seems that products and the spatial features of a room can also contribute to certain group moods by affording or limiting certain interactions. For example, being physically distant from the whiteboard—the center of the clustering activity—caused some participants to feel "out of the vibe" (3-1). In another case, a presentation screen contributed to a serious group mood by commanding the group's attention (3-1). The meeting type, attendee roles, and time may determine the expected group mood, such as a confrontational group mood in a coach meeting (5-1) or a slack group mood on a Monday morning (1-1).

Group life: Many groups mentioned having a standard, frequently experienced group mood—a *base vibe*. The participants reported previous meeting experiences and general group dynamics to play a role in forming the base vibe. Trust among the members, common interests, compatible personalities, related professional backgrounds, and team bond were associated with positive base vibes (4-2, 2-1). Depending on other situational factors, the group mood can deviate from the base vibe during a specific meeting. For example, one group with a friendly and inclusive base vibe experienced a hasty and tense group mood when working to meet a deadline (3-2).

Individual states: Based on participants' reporting, we can infer that in a group mood, individuals feel synchronized with each other's individual states in terms of elements such as personal mood, energy, concentration, and engagement level. One group (4-2) with a fiery group mood touched upon the synchrony in their energy and engagement levels: "Everyone is energetic,

52 Russell, "Core Affect," 807.

53 For a componential approach on emotion see Klaus R. Scherer, "On the Nature and Function of Emotion: A Component Process Approach," in *Approaches to Emotion*, ed. Klaus R. Scherer and Paul Ekman (Hillsdale, NJ: Lawrence Erlbaum Associates, Inc., 1984), 299–301.

54 Randy J. Larsen and Edward Diener, "Promises and Problems with the Circumplex Model of Emotion," in *Emotion and Social Behavior: Review of Personality and Social Psychology*, ed. M. S. Clark (Thousand Oaks: Sage Publications, 1992), 25–59, cited in Bartel and Saavedra, "Collective Construction," 207.

55 Yichen Lu and Virpi Roto, "Towards Meaning Change: Experience Goals Driving Design Space Expansion," in *NordCHI '14: Proceedings of the 8th Nordic Conference on Human-Computer Interaction: Fun, Fast, Foundational* (New York: ACM, 2014), 717–26, https://doi.org/10.1145/2639189.2639241.

everyone is actively and equally participating." Accordingly, asynchrony can lead to divergent or low-intensity group moods. For instance, a participant who perceived the group mood differently than others was regarded as "being out of the vibe" by the rest of the group. Her disparate perception of group mood was attributed to her distinct mood state: "She was very eager, but we were distracted" (T42).

Discussion

Group mood is a complex and pervasive interpersonal experience, one we can all sense. Nevertheless, it is challenging to describe and therefore also challenging to manage or regulate. We have proposed that the first step in designing for beneficial group mood experiences is to develop an understanding of distinct group mood types. This article introduces a preliminary typology of eight group moods: chill flow, creative, fiery, jolly, fuzzy, tense, confrontational, and slack. The descriptions include multimodal representations in order to provide a comprehensive overview comprising text, key words, colloquial phrases and illustrations. This initial typology provides designers with an experience-oriented and granular understanding of group mood.

There are various ways to organize complex subjective phenomena.[52] We adopted a categorical approach to operationalize group mood in the field of design. Meaningful clusters of group mood qualities gave rise to these eight group moods. Following a componential approach, we define each group mood through four aspects that emerged from our data; the feeling aspect, the interpersonal aspect, the workflow aspect, and the motivational aspect. Like individual moods and emotions, none of these aspects in isolation is sufficient to distinguish a group mood,[53] but together they describe a holistic group mood experience.

Compared to dimensional models distinguishing group mood only in terms of valence or arousal, our typology provides a more nuanced and experience-oriented description. For example, the fiery and creative moods both correspond to the high-energy, positive domain in the circumplex model of affect.[54] They do indeed share certain qualities: a feeling of enthusiasm and activeness. However, the workflow and motivational aspects are experienced differently. In a fiery group mood, the group is goal-oriented and works seriously, vigorously, and perhaps even hastily. On the other hand, in a creative group mood, people are concerned with finding a novel idea, and they work in an explorative and playful manner. This means that it is not enough to stimulate action and enthusiasm to facilitate a creative group mood — it is also necessary to enable an explorative working style and a novelty-oriented mindset. For a designer, this objective provides a tangible starting point to effectively design an intervention to induce a creative group mood. Accordingly, we suggest that this typology of eight group moods can be a valuable knowledge source for the design field.

We posit this overview of eight group moods as useful for design practice and research in various ways. With the growing popularity of experience-driven design approaches, designers are required to understand, envision, and communicate nuanced human experiences.[55] This typology provides fine-grained

56   Yoon et al., "When 'Feeling Good' Is Not Good Enough," 10.

57   Lisa Feldman Barrett, "Feelings or Words? Understanding the Content in Self-Report Ratings of Experienced Emotion," *Journal of Personality and Social Psychology* 87, no. 2 (2004): 277, https://doi.org/10.1037/0022-3514.87.2.266.

58   The authors note that the criteria apply to typologies in general. Pieter M. A. Desmet, Disa A. Sauter, and Michelle N. Shiota, "Apples and Oranges: Three Criteria for Positive Emotion Typologies," *Current Opinion in Behavioral Sciences* 39 (June 2021): 120–22, https://doi.org/10.1016/j.cobeha.2021.03.012.

59   Robert B. Cialdini, "The Science of Persuasion," *Scientific American* 284, no. 2 (2001): 78, available at https://www.jstor.org/stable/10.2307/26059056.

language to help designers discern and communicate nuanced group mood experiences.

By understanding how distinct group moods are experienced, designers might be better equipped to identify existing and potential group mood types, and thus take more conscious design decisions. A particular group mood can serve as an inspirational starting point or a complementary desired effect. In addition, this typology can potentially support designer creativity. A granular understanding of group mood can enhance designers' sense of emotional granularity, which has been found to facilitate creativity in the design process.[56]

The typology might also be useful in design research. Although the only way to identify and understand subjective experience is to ask people, not everyone has the vocabulary to describe their experiences accurately.[57] In daily life, many people are unable to articulate their experiences of group mood beyond general terms such as "good" or "bad," or vaguely, as having "cool vibes" for example. One of our participants explicitly pointed out how difficult it can be to find words to describe a group mood. "What adjectives are you looking for? Cause I don't know how to describe a vibe" (P31). In light of that struggle, this typology could help research participants express their existing and desired group mood experiences more explicitly. Additionally, the eight group moods could facilitate a constructive dialogue about group mood-related performance issues in the context of teamwork.

Like any other typology, the eight group mood types have some limitations. We evaluate its strengths and weaknesses based on the three criteria suggested by Desmet, Disa Sauter, and Michelle Shiota for evaluating emotion typologies.[58] The first criterion is comprehensiveness with regard to focus and inclusion. Our typology has a clear focus by distinguishing group mood from group affect and group emotion. We do not claim that our types cover the entire group mood space, however. First, our sample was limited to four design teams and a management team within our department. Additional group mood types may be discovered in other professional settings with a larger sample size. Second, there may be other unpleasant group moods to be discovered. The social validation principle[59] might have caused the teams to report favorable group moods, and voluntary participation may have filtered out groups with problematic group dynamics, decreasing our chances of collecting negative group mood descriptions.

The second criterion for evaluating positive emotion typologies is distinction: the degree to which qualities are consistently clustered. Despite shared qualities, each type is a unique constellation with four aspects; therefore, we consider each distinct as a whole.

The third criterion is granularity: the level of specificity and nuance. We are confident regarding within-cluster homogeneity. Our types are equally complex because each consists of at least one quality in each aspect. Nevertheless, between-cluster heterogeneity can be improved by testing the distinctiveness of the clusters. As a result, we do not consider the eight group moods as a final typology; rather, they are an initial contribution to a growing repertoire of group moods. It is important to note that, in science, a typology is considered adequate if it clarifies a complex phenomenon in a

60 Desmet et al., "Apples and Oranges," 119.

61 Our findings resonate with some variables proposed by the organizational sciences. For example, our concept of *base vibe* relates to *emotional history*, and our activity-related factors relate to *task interdependence*. Janice R. Kelly and Sigal G. Barsade, "Mood and Emotions in Small Groups and Work Teams," *Organizational Behavior and Human Decision Processes* 86, no. 1 (2001): 108, 116, https://doi.org/10.1006/obhd.2001.2974.

given domain.[60] Therefore, despite its limitations, these eight group moods may very well be a valuable step toward operationalizing group mood in the field of design.

Alongside our inquiry into group mood types, several additional insights emerged. Figure 5 shows how these additional findings relate to the main study outcome. First, we learned that in addition to type, there are two additional properties to describe group mood dynamics: intensity and uniformity. Uniformity, in particular, can provide an entry point for designers. We postulate that in a fully uniform group mood, members are synchronized in all four aspects: the feeling aspect, the interpersonal aspect, the workflow aspect, and the motivational aspect. A design intervention facilitating synchrony or asynchrony in these aspects might be the key to setting or avoiding particular group moods. Second, we identified four initial categories of situational factors that influence group mood dynamics.[61] These categories may provide a holistic picture for designers to experiment with group-mood-influencing design interventions. The setting-related factors are especially interesting, as they point to how designed artifacts can have an effect on group mood. Our results show that ordinary office products can be enablers or barriers to certain group moods by supporting or preventing certain interactions. Therefore, investigating the role of artifacts in group mood can provide designers with practical design guidelines, such as recommendations for designing a product that will be used in the context of creative group mood. Importantly, these factors should not be considered as separate variables, but rather as external forces that together form an interaction space in which a group mood emerges (Figure 5).

Figure 5
The four categories of factors form the situation in which a group mood emerges. At the center are the three properties of the group mood, one of which is the type identified by the quality clusters in this study. Image © 2022 Alev Sönmez.
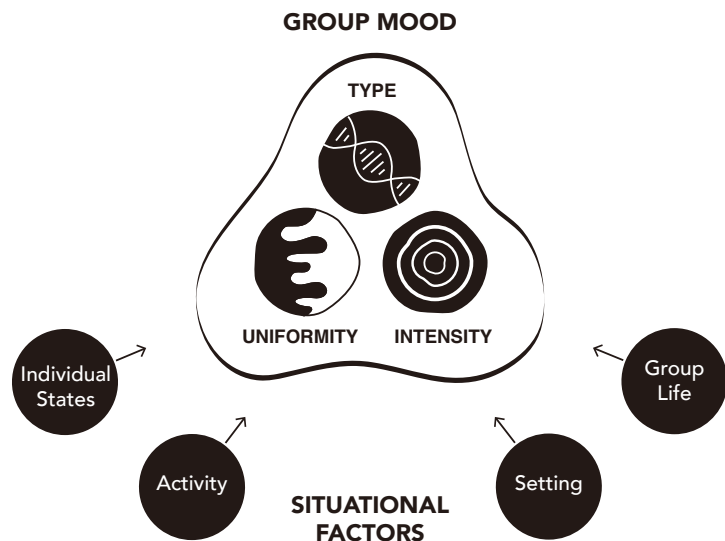
Conclusion

The exploratory study we report on here uncovered the multifaced, complex, and dynamic nature of group mood experienced in real-life group work settings. Our findings contribute to design knowledge in three ways: the descriptions of eight group mood types provide designers with an experience-oriented and granular understanding of group mood; the properties and situational factors of the group vibe open entry points for designers who want to change, maintain, or stimulate a group mood; and the typology expands mood-focused design knowledge and the repertoire of design-related typologies of human experience to a collective context. Thus, this overview of eight group moods is an initial step toward a growing descriptive group mood typology. We envisioned this typology as an effective first step in developing a systematic approach to design for group moods.

Acknowledgments

Declaration of Interests

There are no conflicts of interest involved in this article.

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Appendix A   **The complete list of group mood qualities, grouped under four describing aspects**

Describing Aspects	Group Mood Qualities (as categories of similar qualifier words)	
Feeling Aspect	**The group members feel …**	
The qualities describe how it subjectively feels to be in a group mood. This includes bodily and mental feelings.	1. **Uncertain**	Unsure, unclear fuzzy, lost, confused, uncertain, doubtful
	2. **Clear-minded**	Sharp-minded, productive, clear
	3. **Frustrated**	Frustrated, annoyed, irritated, negative, overwhelmed
	4. **Stressed**	Stressed, on edge, nervous, afraid, worried, panicked, pessimistic, tense
	5. **Chill**	Relaxed, chill, light, comfortable, content, safe, optimistic
	6. **Reluctant**	Unwilling to start or continue, demotivated, unmotivated
	7. **Enthusiastic**	Enthusiastic, excited, inspired, highly motivated
	8. **Giggly**	Giggly, jolly
	9. **Eager**	Eager, ready to act, determined, confident, prepared
	10. **Active**	Energetic, active
	11. **Calm**	Less active, serene, stable
	12. **Drained**	Down, tired, low energy, lethargic
Interpersonal Aspect	**The group members respond to each other in a ____ way.**	
The qualities describe how group members relate to each other in a group mood. This includes how group members interact and respond to each other.	13. **Critical**	Critical, skeptical
	14. **Directive**	Directive, controlling
	15. **Confronting**	Provocative, defensive or offensive, discouraging, judgmental
	16. **Receptive**	Broad-minded, accepting, positive, free, non-judgmental, open, inclusive
	17. **Connected**	Bonded, trusting, equal, honest, genuine, respectful
	18. **Supportive**	Supportive, caring, comforting, helpful, empathic, understanding
	19. **Encouraging**	Encouraging, uplifting, motivating
	20. **Collaborative**	Collaborative, interactive, cooperative, constructive
	21. **Competitive**	Competitive
	22. **Friendly**	Friendly, personal
	23. **Reserved**	Inwards, uncommunicative
Workflow Aspect	**The group members work in a ____ way.**	
The qualities describe how group members conduct the tasks and perceive the workflow in a group mood.	24. **Cautious**	Reflective, contemplative, cautious, careful
	25. **At ease**	At ease, light-hearted, carefree, slow
	26. **Hasty**	Hasty, impatient, rushed
	27. **Smooth**	Steady, smooth, fluent, moving forward
	28. **Chaotic**	Chaotic, messy
	29. **Struggling**	Struggling, challenging
	30. **Vigorous**	Dedicated, committed, proactive, intense
	31. **Explorative**	Explorative, experimental, open-minded, adventurous
	32. **Playful**	Playful, enjoyable, fun, joking
	33. **Serious**	Serious, focused (on the task), concentrated
	34. **Distracted**	Distracted
Motivational Aspect	**The group members are mainly concerned with …**	
The qualities describe what group members are mainly concerned about in a group mood. These are grouped under two overarching categories.	35. **Process-oriented**	Clarity, novelty, enjoyability, connection
	36. **Goal-oriented**	Goal achievement, task completion

Appendix B　　**The unique quality clusters from four aspects that identify each group mood**

Group Mood Types	Group Mood Qualities			
	Feeling Aspect	**Interpersonal Aspect**	**Workflow Aspect**	**Motivational Aspect**
Chill Flow	(2) Clear-minded (5) Chill (11) Calm	(16) Receptive (18) Supportive (20) Collaborative	(25) At ease (27) Smooth (33) Serious	(35) Process-oriented
Fiery	(2) Clear-minded (7) Enthusiastic (9) Eager (10) Active	(14) Directive (17) Connected (19) Encouraging (20) Collaborative	(26) Hasty (27) Smooth (30) Vigorous (33) Serious	(36) Goal oriented
Fuzzy	(1) Uncertain (11) Calm	(13) Critical (16) Receptive (20) Collaborative (23) Reserved	(24) Cautious (28) Chaotic (29) Struggling (33) Serious	(35) Process-oriented
Creative	(1) Uncertain (5) Chill (7) Enthusiastic (10) Active	(16) Receptive (19) Encouraging (20) Collaborative (22) Friendly	(25) At ease (28) Chaotic (31) Explorative (32) Playful	(35) Process-oriented
Tense	(3) Frustrated (4) Stressed (10) Active	(14) Directive (20) Collaborative	(26) Hasty (29) Struggling (30) Vigorous (33) Serious	(36) Goal oriented
Confrontational	(1) Uncertain (3) Frustrated (9) Eager (10) Active	(13) Critical (14) Directive (15) Confronting (21) Competitive	(24) Cautious (28) Chaotic (29) Struggling (30) Vigorous (33) Serious	(35) Process-oriented
Slack	(3) Frustrated (6) Reluctant (12) Drained	(13) Critical (23) Reserved	(25) At ease (29) Struggling (34) Distracted	(36) Goal oriented
Jolly	(5) Chill (6) Reluctant (8) Giggly (11) Calm	(16) Receptive (17) Connected (18) Supportive (19) Encouraging (22) Friendly	(25) At ease (32) Playful (34) Distracted	(35) Process-oriented