**Emoji and Creativity - 1st experiment proposal**

**EXPERIMENTAL DESIGN**

This experiment tests four hypotheses: (1) emojis enhance group members’ perceptions of the group atmosphere, task performance, and overall group evaluations, (2) emojis improve team creative productivity, (3) these effects are mediated by the perceived playfulness of group interaction and potentially by the perceived warmth of the group (especially during the idea generation phase, where playfulness is expected to foster divergent thinking and the production of more varied ideas), and (4) within the emoji condition, a higher frequency of emoji use increases perceived playfulness, which in turn fosters greater creative productivity.

We will employ a between-subjects design with one manipulated factor: emoji keyboard availability (present vs. absent). Participants will be recruited individually and randomly assigned to one of the two conditions. After the assignment, they will be placed into teams of four, with all members sharing the same keyboard condition. Each team will then complete a creative task using a web-based group chat platform designed to emulate a standard messenger interface.

**METHOD**

**Participants:** A total of 600 U.S. adults (age ≥18) will be recruited via Prolific in exchange for pay. Eligibility criteria will include fluent English proficiency, desktop/laptop access (no mobile devices), and a minimum Prolific approval rate of 95%. Following informed consent, participants will be randomly assigned to one of two experimental conditions and subsequently grouped into teams of four within each condition. Our decision to have 75 groups per condition is based on the research of Brucks and Levav (2022).

**Procedure**

After providing informed consent and receiving instructions, participants will begin by briefly introducing themselves in the group chat to establish initial familiarity (1-minute window). They will then perform a creativity task: generating as many alternative uses as possible for a silver ring within five minutes. All ideas will be evaluated by two independent judges on originality, variety, and feasibility. Next, each group will have five minutes to collectively select the single most creative idea from those generated.

In the emoji-keyboard condition, participants will be greeted with a welcome message from the experimenter containing both text and emojis from the experimenter, designed to encourage emoji use. In the control condition, the welcome message will contain only text.

Following the creativity task, participants will complete an exit survey assessing perceptions of task performance and the idea-selection process, group atmosphere (comfort, expression, and group dynamics), group evaluation, warmth and competence, and perceived playfulness. The survey will also include a background measure of general emoji usage in chat and demographic items (age, gender) .We will give participants the opportunity to comment on the experiment.

**MEASURES**

The manipulated independent variable is emoji availability (present vs. absent). Random assignment occurs at the individual level, but because participants are subsequently grouped into four-person teams that all share the same condition, the design is nested: individuals are nested within chat groups, and the experimental manipulation is applied at the group level.

Unless otherwise noted, all self-report items in the exit survey will be rated on a 7-point Likert scale (1 = strongly disagree/not at all, 7 = strongly agree/extremely).

***Creativity***. Creativity will be assessed at the group level using both quantitative and qualitative indicators: Idea productivity (quantity) will be measured as the number of distinct ideas each group generates. Idea quality will be evaluated by two independent external judges, blind to condition, who will rate each idea on originality and feasibility using seven-point Likert-type scales. To ensure the robustness of these ratings, inter-rater reliability will be calculated using the intraclass correlation coefficient (ICC(. A further measure, selection accuracy, will capture the extent to which groups succeeded in choosing the most creative idea: the difference between the rating of the group’s selected idea and the rating of the highest-scored idea in the group (Brucks & Levav, 2022), with an additional binary indicator coded as 1 if the chosen idea was the top-rated idea and 0 otherwise.

***Perceptions of Idea Generation and Selection Processes.*** Individual-level perceptions will be collected through the exit survey. Three items will assess perceptions regarding the *idea generation process* )"*Overall, to what degree did you feel your group came up with creative ideas?"; "To what extent do you feel the group worked well together on generating ideas?”*; "*To what extent do you feel the group gave you a chance to express yourself during the idea generation process?”*) and two items will assess *the idea selection process* (*“To what extent did you think the idea selected by your group was the best one?”*; *“How satisfied are you with your group’s idea selection performance?”(*

***Group Competence.*** Participants' perceptions of group competence will be measured via three items on a 7-point semantic differential scales: *(“The group was incapable/capable”, “The group worked ineffectively/effectively”, “The group was incompetent/competent”).*

***Group Warmth.*** Participants' perceptions of group warmth will be measured via three items on a 7-point semantic differential scales: *“The group felt unfriendly/friendly”, “The group seemed cold/warm", "The group was unapproachable/approachable”*.

***Group Atmosphere.*** Consistent with prior research (e.g., Brucks & Levav, 2022; Oetzel, 2001; Reid & Reid, 2005), *group atmosphere* will be assessed using items that capture three facets: comfort (1 item: *“How comfortable did you feel communicating with the other members?”*), expression (2 items: *"Were you able to express all of your ideas?”; “How often did you not* present *an idea because you were worried about what your partners would comment about it?”*), and group dynamics (5 items: *“We showed positive attitudes towards one another”; “We encouraged each other”; “One or two members tended to dominate the discussion”; “Even though we didn’t have total agreement, we did reach a kind of consensus that we all accept”; “I was happy with how* *our group interacted”*).

**Group *evaluation*.** Participants will evaluate their group on two 7-point semantic differential items *("I disliked this group/I liked this group"; "I would not want to work with this group again/I would like to work with this group again"*).

***Perceived Playfulness (mediator).*** Playfulness will be measured with three items *(“I found the interaction playful”; “Participating in the task felt fun”;* "*Participating in the task aroused my imagination*").

***Emoji Use, Motivation, and Demographics.*** Behavioral data on emoji use (the number of emojis used per participant and per group) will be extracted from the conversation logs. In the control condition, emoji use will be coded as zero for all participants. We will also ask participants to indicate their general emoji usage (*“To what extent do you generally use emojis in chat conversations?”*). In addition, participants will rate their motivation using a single item *(“To what extent was it important for you to perform* *well in this study?”*)*.* Finally, we will collect demographic information (age, gender) and thank participants for their participation.

**APPENDIX A - Consent form**

**Hello and welcome to this survey.**

**Before you begin, please read the consent form on this page.**

📝 Consent Statement

You are participating in a study being performed by researchers from The Coller School of Management at Tel Aviv University. Your participation in this research is voluntary. You may decline to answer any or all of the following questions. You may decline further participation at any time, without adverse consequences.

Your anonymity is assured; the researchers who have requested your participation will not receive any personal information about you. If you have any questions about the research, you can contact the principal researcher, Prof. Shai Danziger at shaid@tauex.tau.ac.il

🔍 About the Study

In this study, you’ll take part in a short online group activity. After giving your consent, you’ll receive a link that will take you to a group chatroom built especially for this research. You’ll be randomly placed in a small group with other participants. Once your group is ready, you’ll work together on a fun creativity task: first, coming up with as many different uses as you can for a common object, and then deciding together which idea is the most creative.

After completing the task, you will also be asked a series of questions about it and about yourself.

During the task, your conversations will be recorded and analyzed for research purposes. All data will be stored securely and used only in anonymized form, so that no individual participant can be identified. **Please consent by clicking the >> button to continue.**

Otherwise, please exit the study at this time.

**APPENDIX B -** **Experimenter's messages:**

Condition A: emoji keyboard availability

**Message 1:** (once all 4 members are in the chat)

**Welcome, and thank you for joining my experiment!** **🙂**

My name is Adva, and I am conducting this study as part of my doctoral research.

I’d appreciate it if each of you could **briefly introduce yourself🌺**

**Message 2:** (after the introduction period is over)

Thanks for introducing yourselves! 🙏🏼

You now have **5 minutes** to suggest as many **original but practical uses** as possible for a silver ring (finger-sized) 💍.

You can propose new ideas 💡, build on others’ ideas, or comment on suggestions .

**Message 3:** (after 5 min.)

Great job, everyone 👏🏼 The idea-sharing part is done!

Now you’ve got **5 more minutes** **to decide together on the** **best idea** 🏆from what you came up with.

Try to think about both how **creative** and how **doable** the idea is.

Can’t wait to see what you choose! ✨

**Message 4:** (after 5 min.)

Alright, time’s up! ⏰

**Please share here the winning idea** your group decided on.

Then, each of you can head over to the **final survey** at this link: [link]

Thanks so much for your participation! 🙏

Condition B: no-availability for emoji keyboard: All automated messages will be the same as in condition A, minus the parts marked in grey and the emojis.

**APPENDIX c - Exit Survey items**

**Idea generation process:** Each item will be rated on a 7-point Likert scale (1 = not at all, 7 = extremely).

1. “"Overall, to what degree did you feel your group came up with creative ideas? (Brucks & Levav, 2022)
2. "To what extent do you feel the group worked well together on generating ideas?”
3. "To what extent do you feel the group gave you a chance to express yourself during the idea generation process?”

**Idea selection process**: Each item will be rated on a 7-point Likert scale (1 = not at all, 5 = extremely).

1. “To what extent did you think the idea selected by your group was the best one?”
2. “How satisfied are you with your group’s idea selection performance?”

**Group Competence:** Each item will be rated on a 7-point semantic differential scale

1. “The group was incapable/capable”
2. “The group worked ineffectively/effectively”
3. “The group was incompetent/competent”

**Group Warmth**: Each item will be rated on a 7-point semantic differential scale.

1. “The group felt *unfriendly/friendly*”
2. “The group seemed *cold/warm*"
3. *"*The group was *unapproachable/approachable”*.

**Group Atmosphere:**

**Comfort**: Item will be rated on a 7-point Likert scale (1 = not at all, 7 = extremely).

1. “How comfortable did you feel communicating with the other members?” (Reid & Reid, 2005)

**Expression**: Each item will be rated on a 7-point Likert scale (1 = not at all, 7 = extremely).

1. “Were you able to express all of your ideas?” (Brucks & Levav, 2022)
2. “How often did you not present an idea because you were worried about what your partners would comment on it?” (Brucks & Levav, 2022)

**Group dynamics**: Each item will be rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree).

1. “We showed positive attitudes towards one another.” (Oetzel, J.,2001)
2. “We encouraged each other.” (Adapted from Oetzel, J.,2001)
3. “One or two members tended to dominate the discussion.” (Oetzel, J.,2001)
4. “Even though we didn’t have total agreement, we did reach a kind of consensus that we all accept. “(Oetzel, J.,2001)
5. "I was happy with how our group interacted.” (Adapted from Oetzel, J.,2001)

**Group *evaluation*:** Each item will be rated on a 7-point semantic differential scale.

1. "I disliked this group/I liked this group."
2. "I would not want to work with this group again/I would like to work with this group again."

**Perceived playfulness:** Each item will be rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree).

1. "I found the interaction playful."
2. “Participating in the task felt fun.” (Adapted from Byun et al. 2017)
3. "Participating in the task aroused my imagination." (Adapted from Byun et al. 2017)

**Emoji use**: Item will be rated on a 7-point Likert scale (1 = not at all, 7 = very often).

1. To what extent do you generally use emojis in chat conversations?

**Motivation**. Item will be rated on a 7-point Likert scale (1 = not at all, 7 = extremely).

1. *To what extent was it important for you to perform* *well in this study?*

**Demographics:**

1. Please select your gender
2. Please indicate your age

**REFERNCES**

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