

The Role of Slowing Down in Fast-Paced Game Jams

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ABSTRACT

This paper explores the role of “slowing down” on participant well-being, creativity and productivity during game jams. While the intense and short format of game jams can facilitate creativity by accelerating decision-making, it can also lead stressful participation. To counteract these stressful effects and explore alternative forms of participation, this paper presents a pilot study designed to facilitate relaxation and well-being during an intense 48-hour game jam. The intervention is motivated by the understanding that creativity and productivity are not solely driven by accelerated decision-making. Indeed, relaxation can lead to an incubation effect which is a key part of the creative process, and well-being have been linked to increased productivity. We discuss preliminary findings from the study while acknowledging the limitations of the early-stage research. The paper concludes by outlining promising future research directions, emphasizing the potential benefits of enhancing well-being and supporting relaxation in game jam and hackathon formats to increase creativity, productivity, and accessibility.

CCS CONCEPTS

• **Human-centered computing** → *Interaction design*; **Empirical studies in HCI**;

KEYWORDS

Game jam, participation, creativity, mindfulness, intervention

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1 INTRODUCTION

Game jams have been defined as “an accelerated opportunistic game creation event where a game is created in a relatively short

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timeframe exploring given design constraint(s) and end results are shared publically” [13]. Especially the short time frame of often only 48 hours has been credited with speeding up the development process “by cutting parts of the selection and decision making procedures” [13] which may in turn support participants’ creativity [7]. While creativity is an attractive effect of the short and intensive game jam formats, there can be downsides for participants if, for example, they struggle with adjusting their ambitions to the format, which may lead to crunching and burnout [14]. There have been calls for slower game jam formats, such as extending the typical 48-hour jam to relieve stress and enhance creativity [2, 15]. In this paper, we explore a different approach to slowing down game jams through an intervention called VibeHive, designed to promote mindfulness and well-being during a 48-hour game jam, potentially boosting creativity and productivity. Mindfulness and relaxation have been linked to creativity through the incubation effect, where stepping away from a task can lead to fresh insights upon returning [18, 20]. To evaluate our intervention, we collected both qualitative and EEG data, as EEG is a promising method for studying creative cognition [19]. Post-game jam interviews with five participants indicated that the setup made them feel relaxed, and all felt the 30-minute break was worth it. They reported increased clarity, productivity, collaboration, and creativity afterward. While preliminary, these findings suggest that supporting well-being during game jams may enhance participants’ creativity and productivity, and further research is needed to validate these results. We believe this research offers valuable insights for those organizing fast-paced game jams and hackathons, highlighting the potential benefits of incorporating well-being practices to reduce stress and enhance creative outcomes. We discuss directions for future research in this area.

2 RELATED WORK

This section reviews research on the connection between mindfulness, relaxation, and creativity, especially in the context of short-form game jams. Studies consistently show strong links between these elements, suggesting that mindfulness and well-being may enhance creativity and productivity in fast-paced environments like game jams or hackathons. Wallas proposed that creativity unfolds in four stages: Preparation, Incubation, Illumination, and Verification, with incubation often involving relaxation or mindfulness practices [18, 20]. Mindfulness, defined as “non-judgmentally aware of the present moment,” is closely linked to relaxation, aimed at reducing bodily tension [4]. For this study, we did not strictly separate the

two forms, as the goal was to enhance well-being and creativity. While incubation's role in creativity is well-supported, few studies have applied these processes to game jams or hackathons. Still, organizations recognize the benefits of mindfulness in improving health and performance [5, 9]. Abbott et al. proposed a "Slow" Game Jam model, arguing that extended formats foster better collaboration by allowing time for reflection [2]. While their focus differs, we agree that breaks are beneficial even in shorter game jams, as research shows that brief meditation can enhance creativity, attention, and emotional regulation [3, 6, 10].

3 THE GAME JAM VENUE AND THE VIBEHIVE SETUP

The Nordic Game Jam (NGJ), which the study took place in, was a 48-hour event that spanned Friday, Saturday, and Sunday. More than 500 participants were co-located in one physical venue. NGJ is an annual event open to everyone. In addition to the jam itself, the event offers game lectures, workshops, and industry talks. The creative constraints for the game jam were the themes: "Reflection", "Keeping secrets", and "Sense of Belonging". Because the study was exploratory and conducted during a game jam, we implemented several elements to make the VibeHive space as relaxing as possible instead of, for example, only implementing a few elements to control any variables as in a lab study, see 1 in the Appendix. This allowed us to test the setup, collect data for preliminary research findings presented in this paper, and evaluate it to prepare for future research. The setup consisted of a room in a quiet area of the game jam venue, see Figure 1. Participants could sit in a comfortable chair in front of some plants. The ceiling lamps in the room were covered with red plastic sheets, which dimmed the lights and made the room red. On the floor were lamps with additional red lights and a speaker playing music from brain.fm¹, which uses different audio techniques to change brainwave patterns that support the listener to, e.g., relax. Because our goal was to create a relaxing atmosphere, we chose red lighting to simulate a setting that resembled a sunset. Each participant in the intervention had in-ears EEG, the IDUN Guardian², to measure brainwave activity, along with the Bitalino PlugX system³ that additionally captured the EEG attached to the forehead, and the electrocardiogram (ECG), which measured HRV, were attached to the hand and the wrist. In the background of figure 1, a researcher analyses the participant's data while the participant is relaxing in the front. During the activity we put up room dividers to hide the researcher, so that the participant would not feel that they were observed while they were relaxing.

4 METHOD

In this section, we describe the in-depth interviews. The full data collection was created by several methods before, during, and after the activity:

Before: We recruited participants for the study by setting up a booth in the sponsors' game jam area in an open and visible common area and entrance to the venue. We had a roll-up at the booth that described the activity, and the first author was present to talk

with interested game jammers about the study. Anyone interested in participating in the game jam could sign up for a 30-minute time slot during the game jam. Recruitment was generally done on Friday, while the activity was conducted with nine participants on Saturday. One person opted out of the data collection, and we collected informed consent forms and data from eight participants. Before the activity, participants filled in the Short Scale of Creative Self (SSCS), a survey instrument measuring creative self-efficacy and personal identity [12].

During: EEG and HRV data was collected. Each session was 15 minutes. The participant sat in silence for the first five minutes while the data was collected to form the simple baseline for the physiological data collection. From the 10-minute mark, we collected 10 more minutes, and the audio track was played while we continued to collect the physiological data.

After: The participants filled in the SSCS again before returning to the game jam. Five participants responded to our invitation for a follow-up interview two weeks after the game jam. A university ethics board approved the study.

We collected EEG and HRV data from all five participants; however, this paper focuses on the post-game jam interviews.

4.1 Post-Game Jam Interview

We interviewed five participants a couple of weeks after the game jam when they still had the experience fresh in memory and could compare their experience of the activity to their experience of the game jam as a whole; see 1 in the Appendix for their backgrounds.

We structured the post-game jam interview guide around event-focused and detailed descriptions of how the interviewees felt, thought, and acted during the event [11] and topics of effectiveness, efficiency, and appeal [8, 17] of the VibeHive activity itself. The interview guide also included questions about the participant's experience of the activity's impact on their game jam process and how they would improve the VibeHive setup. The interview guide can be seen in appendix C.

5 RESULTS

5.1 Post-Game Jam Interviews

We conducted a descriptive analysis of the interviewees' responses, focusing on their experience of the activity compared to their overall game jam experience and evaluating the potential of the proposed setup for inducing relaxation into fast-paced design events like game jams or hackathons.

5.1.1 Effectiveness. All participants agreed that the setup achieved the goal of making them relaxed during the game jam, and they emphasized some elements of the setup contributing to this, such as the music, the dimmed lighting, and the plants. P1 and P3 found the "experiment-like" setup somewhat distracting although they were still able to relax in the setting.

5.1.2 Enjoyment. All participants enjoyed the experience of the activity, and P3, P4, and P5 mentioned the exciting novelty of having electrodes on them to measure different data. Both P1 and P5 appreciated that there was an extra incentive to participate in the

¹see www.brain.fm

²<https://iduntechnologies.com/>

³<https://www.pluxbiosignals.com/collections/bitalino>

activity because they had to sign up, which removed the responsibility for actively deciding on when and how to relax, similar to the VibeHive, during the game jam on their own.

5.1.3 Efficiency and Impact. The most interesting finding revolved around the efficiency of the activity and its subsequent impact on the game jam process. All participants felt that the trade-off of spending 30 minutes “away” from the game jam and instead in the VibeHive setting was worth it. When asked whether the activity impacted them afterwards, all participants reflected that they had felt an impact. P5 reflected that it is difficult to measure whether it was the activity itself or other factors that had an impact on his productivity, but added that:

“I think it cleared up my mind. And I was more ready to go at the tasks at hand afterward than I was before. I mean, we had a blast all the way through, but just having that break was sort of nice [...] Obviously, in any game jam, it’s quite stressful, and you can’t implement everything you want to implement, but sometimes you need to choose the parts that give the most value. And I think that was probably made a bit easier or at least a bit more... It was more apparent to me what needed to be done [after the activity].”

While P2 did not participate in one group and was working on his “dayjob” during the game jam, he reflected how he felt an impact on his productivity level an hour after the activity:

“Because sometimes when you’re mentally overloaded, writing a simple email can be a difficult task [...] But after the VibeHive, after I had that chillout session... I remember like coming back and doing a lot of things that I had been putting off for the duration of the day. Just like, oh, yeah, I can do this quickly now” (P2).

P4 felt more relaxed about their game for about two to three hours after the activity, and P1 similarly reflected that he felt an uptick in his “feelings of creativity” after the activity. However, he was not sure whether this feeling would have been different than if he had just meditated on his own. P1 also reflected that he is aware of the value of meditation, especially in stressful work environments, but that it is difficult to incorporate relaxation or meditation practices in such settings. Participating in a game jam already induces a more experimental approach, and P1 felt that this particular mindset prompted by the game jam made it easier to try out something out of the ordinary, such as participating in the VibeHive:

“it’s much easier in the context of a game jam to try something unusual or different because I’m already in that kind of a context [and I would] definitely consider in the future at a game jam or anytime I’m trying to be creative under stress to find a point to get away and then meditate for 30 minutes or so to recenter yourself” (P1).

P1 further elaborated that the activity may have made him more relaxed when having discussions in his group and more “more open to being able to go with the flow of the group rather than feeling like I need to push things.”

5.1.4 Suggestions for improvement. When asked whether they could imagine using a setup like the VibeHive in a similar setting in the future (e.g., a game jam or a hackathon), all participants agreed to some extent and suggested several ideas for improving the setup. We also discussed our future research plans of developing a live visual simulation of the participants’ brainwave activity as part of the VibeHive setup.

P1 and P5 both discussed that the electrodes created a rather “clinical setting”, distracting from the setup as a relaxing space. At the same time, P1 and P2 suggested better incorporating the EEG electrodes into the setup, not just for the participant’s relaxation and mindfulness stream of the data visible for the participant. This kind of visualization should be designed to support the participant’s relaxation and mindfulness and should not distract the participant. For example, the interaction should not cause the participant to worry whether they were relaxing “correctly” if the visualisation did not react in an anticipated way. P2 suggested to “give something back to the participants” in the form of a visualization of their data.

All participants suggested different ideas for making the setup itself more comfortable and relaxing, such as having comfortable chairs. Generally, the participants liked the elements of light and music. As additional modalities, P1 and P2 suggested aroma therapy, and P5 suggested offering participants something to hold in their hands and move, such as a fidget toy. P2 further suggested exploring more immersive and portable versions of the VibeHive setup, such as designing it in a VR setting.

6 DISCUSSION

From the research literature, there is support for introducing even short mindfulness and relaxation activities to improve creativity and wellbeing [3, 6], effects which can be observed immediately after a mindfulness activity [10]. Because of this, we hypothesized that even short-form game jams might benefit from offering participants mindfulness activities. Based on the preliminary results, the study shows promise for exploring the role of slowing down in fast-paced creative settings such as in-game jams and hackathons. In particular, our study supports the existing research on the connection between creativity and mindfulness. We contribute to this discourse by exploring how to meaningfully incorporate mindfulness activities into fast-paced game jam or hackathon formats.

For example, a dedicated contemplation room is already available at the game jam venue; however, some game jam organizers explained that participants rarely use the rooms (personal communication, March 2024). Both P1 and P5 appreciated the extra incentive of the VibeHive setup to participate in our mindfulness activity, where the booth made the activity visible for game jammers, and the sign-up sheet created some responsibility of showing up to the activity as well. P5 explained that signing up removed his responsibility to decide whether to relax or meditate actively. P2 also discussed how people oftentimes forget to take breaks even though they know it is good for their creativity and productivity:

“Because you have deadlines, meetings, and people who want your attention and everything else. And then it feels like I can’t possibly take 30 minutes because those 30 minutes I could use on writing many more emails and stuff like that.”

Although this was in P2's 'day-job' context, we believe it may be true for many game jam participants, too. *We recommend that game jam or hackathon organizers who wish to explore a similar setup like the VibeHive in their event should create a visible incentive for participants to spend time in mindfulness activities, such as having a recruitment booth and a sign-up sheet.*

Some participants mentioned that they were excited about the EEG electrodes, and, as P1 mentioned, because he was already participating in a game jam, where experimentation and creativity are encouraged, it was easier for him to try something unusual. There is certainly a novelty effect in facilitating mindfulness activities in a game jam and including EEG and ECG sensors as part of the data collection method for the particular study. For our future research on this, they will also be part of a visualization in the VibeHive setup. A novelty effect may have impacted those who were attracted to the study during the game. As appendix D shows, our participants already saw themselves as quite creative. However, it could be argued that game jam participants, in general, may view themselves as creative compared to people not participating in game jams. This aspect motivates future research, which includes more participants who are more diverse to do the activity and learn about their experience. It also motivates research on how game jam participants, in general, view their own creativity - do they want to practice their already creative abilities, or do some view game jams and similar events as opportunities to train their creativity? Researching creativity interventions in game jams or hackathons could be beneficial for attracting certain participants if they involve some novel aspect that caters to an experimental mindset. *For organizers, it might be useful to include something unusual - like EEG scanners - to their mindfulness intervention as it could create more incentive to participate, similar to having a booth or sign-up sheet.*

Another interesting aspect of how to best include mindfulness activities in game jams revolves around the timing of such activities. P1 reflected on when doing a mindfulness activity during the game jam would make sense. From our perspective, we planned to recruit participants on Friday, while the activity was planned to happen on Saturday. We hypothesized that most participants would need a mindfulness activity halfway through the game jam, where most participants had probably decided on an idea for a theme and had to make decisions on how to implement the idea. P1 reflected that the optimal timing of a mindfulness activity may indeed rely on where in the creative process a person or group is:

"But we were in a good position because we agreed on what we wanted to do on Friday night. So by the time Saturday lunch came around, we were already kind of confident moving forward and there wasn't like this critical stress of, oh crap, we still haven't figured out what we want to do on mid-Saturday. I think it did help me to know, okay, everything's cool. I can just relax and focus on getting things done and working with people and be more open to whatever they're providing me."

P1 further suggested offering a mindfulness activity on Friday before group ideation kicks off after the theme reveal. They reflected that if such an activity was done for the whole group on Friday

before ideation, it might have made the group more open to ideas and brainstorming.

We recommend organizers to reflect on how they might best time mindfulness activities. More research is still needed to discuss how different timings of a mindfulness activity may entail different effects on, for example, ideation or decision-making depending on when such an activity is done in the creative process.

6.1 Limitations and Future Research

We plan to continue the research started in this pilot study and conduct the activity in game jams and hackathons. We plan to improve the setup based on several participants' suggestions, such as making the space feel less "clinical" and more relaxing. To improve the validity of the findings, we aim to attract more diverse participants. We will also develop a method for collecting and processing physiological data using a single sensor device to collect EEG and HRV data. Attracting more participants would also enable us to explore individual and group participation in a mindfulness activity—could such an activity improve collaboration? A hypothesis, which we will explore in future research, is that supporting mindfulness during intense events like game jams and hackathons may improve the accessibility of these formats. We plan on further developing the VibeHive setting by including the EEG scanners as part of visualization to further support the relaxing atmosphere. We also plan to create incentives for participants to spend some time away from the game jam participating in the activity. We realised that the timing of a mindfulness activity is also important to consider, and we will explore different timings of the activity as well—does it make more sense to have it before or during ideation, or during intense decision-making when the idea needs to be implemented into a tangible or interactive form? While part of our motivation was to facilitate mindfulness and relaxation for the participants, we did not ultimately measure creativity as such other than the participants' SSCS responses. Future research could target the study of creativity more directly by, for example, studying the participants' outcome of the game jam, a game prototype, and use the 'gold standard' for creativity assessment: The consensual assessment technique [16], where expert raters meticulously evaluate the games.

7 CONCLUSION

We presented the preliminary findings of a pilot study designed around a mindfulness intervention in a short game jam format. The findings are based on post-game jam interviews, where the participants could reflect on their experience in the intervention compared to their overall experience of the game jam. The intervention showed potential for supporting deep relaxation for the participants. We believe the findings contribute to an important discussion on how to make game jam and hackathons less stressful [2, 15] and thereby also more accessible. In addition, we believe such interventions have great potential for overall well-being, creativity, and productivity, and we discuss some recommendations for game jam and hackathon organizers who wish to explore similar mindfulness interventions in their events.

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A VIBEHIVE SETUP



Figure 1: The person sitting in the front is wearing EEG electrodes (red wires) on their forehead and in their ears. They are relaxing in front of some plants, some red colored lights, a near-infrared light bulb pointed towards the wall, and speakers playing music from brain.fm, which is designed with gentle, rhythmic pulses in the music [1].

B PARTICIPANTS

Participant	Age	Role	Experience
P1	49	Design, code	6 game jams
P2	40	Sponsor, playtester and helper	2 game jams
P3	30	Code, audio design	1 game jams
P4	23	Code	3 game jams
P5	21	Code, audio design	3 game jams

Table 1: Demographic background of the interviewees, who were all male. Role describes the role during the game jam, and experience describes their experience with game jams, including the one they participated in during the study. P2 did not participate in one game jam group but was present during the whole game jam and helped out other groups.

C POST GAME JAM INTERVIEW GUIDE

- Their role in the game jam?
- Do you have experience with meditation before?

- After acquiring an initial description of the activity, ask participants to chronologically describe what happened across the duration of the activity.
- Describe their subjective experience across the activity and identify periods when the performance was 'going particularly well'
- Effectiveness: How well did the practice attain the goal of making you feel relaxed?
- Efficiency: How effective was the practice in relation to the cost (e.g., time, and energy)? Was it useful for you, and if so in what way?
- Appeal: How enjoyable was it for you to participate in the activity?
- Impact: How do you think this setup might have impacted your game jam process after participating in it?
- Can you imagine using a setup like this in a similar context again in the future?
- Can you imagine using a setup like this in a different context again in the future?
- If you were to design a similar setup, what would you change about it and why? What would you keep and why?
- We are working on a visual simulation which reacts live to the users' brainwaves, could you imagine using that in such a setup?

D SSCS

The following two tables describe the participants' responses for the SSCS survey before and after the activity. SSCS2 in the table shows P1's responses, SSCS3 shows P2's responses, SSCS6, shows P3's responses, SSCS5 shows P4's responses, and SSCS7 shows P5's responses.

BEFORE					
	1= Definitely not	2	3	4	5= Definitely yes
I think I am creative person			SSCS5	SSCS2, SSCS3, SSCS6	SSCS1, SSCS4, SSCS7, SSCS8
My creativity is important for who I am		SSCS5		SSCS2, SSCS6, SSCS8	SSCS1, SSCS3, SSCS4, SSCS7
I know I can efficiently solve even complicated problems			SSCS2, SSCS7	SSCS3, SSCS4, SSCS5, SSCS6, SSCS8	SSCS1
I trust my creative abilities		SSCS5	SSCS2	SSCS4, SSCS6, SSCS7, SSCS8	SSCS1, SSCS3
My imagination and ingenuity distinguish me from my friends		SSCS5	SSCS2, SSCS6, SSCS7	SSCS3, SSCS8	SSCS1, SSCS4
Many times, I have proved that I can cope with difficult situations			SSCS4, SSCS7	SSCS2, SSCS5, SSCS6, SSCS8	SSCS1, SSCS3
Being a creative person is important to me		SSCS5		SSCS8	SSCS1, SSCS2, SSCS3, SSCS4, SSCS6, SSCS7
I am sure I can deal with problems requiring creative thinking			SSCS5	SSCS2, SSCS4, SSCS6, SSCS7, SSCS8	SSCS1, SSCS3
I am good at proposing original solutions to problems			SSCS4, SSCS7	SSCS2, SSCS3, SSCS5, SSCS8	SSCS1, SSCS6
Creativity is an important part of myself		SSCS5		SSCS8	SSCS1, SSCS2, SSCS3, SSCS4, SSCS6, SSCS7
Ingenuity is a characteristic which is important to me			SSCS4, SSCS5, SSCS8	SSCS2, SSCS6, SSCS7	SSCS1, SSCS3

Table 2: The participants' responses before the VibeHive activity. Each participants' response is denoted with SSCS1 and up to SSCS8

AFTER					
	1= Definitely not	2	3	4	5= Definitely yes
I think I am creative person			SSCS5	SSCS2, SSCS6, SSCS8	SSCS1, SSCS3, SSCS4, SSCS7
My creativity is important for who I am		SSCS5		SSCS6, SSCS8	SSCS1, SSCS2, SSCS3, SSCS4, SSCS7
I know I can efficiently solve even complicated problems			SSCS4	SSCS2, SSCS5, SSCS7, SSCS8	SSCS1, SSCS3, SSCS6
I trust my creative abilities			SSCS5	SSCS2, SSCS4, SSCS6, SSCS8	SSCS1, SSCS3, SSCS7
My imagination and ingenuity distinguish me from my friends		SSCS5	SSCS6, SSCS7	SSCS2, SSCS8	SSCS1, SSCS3, SSCS4
Many times, I have proved that I can cope with difficult situations			SSCS7	SSCS4, SSCS5, SSCS8	SSCS1, SSCS2, SSCS3, SSCS6
Being a creative person is important to me		SSCS5			SSCS1, SSCS2, SSCS3, SSCS4, SSCS6, SSCS7, SSCS8
I am sure I can deal with problems requiring creative thinking			SSCS5	SSCS2, SSCS7, SSCS8	SSCS1, SSCS3, SSCS4, SSCS6
I am good at proposing original solutions to problems			SSCS5	SSCS2, SSCS4, SSCS7, SSCS8	SSCS1, SSCS3, SSCS6
Creativity is an important part of myself		SSCS5		SSCS8	SSCS1, SSCS2, SSCS3, SSCS4, SSCS6, SSCS7
Ingenuity is a characteristic which is important to me			SSCS4, SSCS5, SSCS8	SSCS2, SSCS7	SSCS1, SSCS3, SSCS6

Table 3: The participants' responses after the VibeHive activity. Each participants' response is denoted with SSCS1 and up to SSCS8