Can Game Jams Boost Confidence and Sense of Preparedness?

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ABSTRACT

Many aspects of game jams have been studied as their popularity continues to grow. Their lingering effects on learning, motivation, and social interaction has been documented over the years. In this paper, we observe the immediate effects game jams have on participant confidence in game making skills, and preparedness, as they change over the course of the jam. We conduct surveys on three different jams held from 2016 to 2019. We collect a total of 107 surveys with 26 full sets (subjects) for the confidence questions and 17 for the preparedness. By surveying participants each day at three different game jams, we observe a consistent trend of positive change in their confidence and preparedness. Our results suggest game jams have an immediate positive influence on participants' confidence and sense of preparedness in making games, and this should be studied further.

CCS CONCEPTS

• **Human-centered computing** → **User studies**; *Collaborative interaction*; • **Applied computing** → *Interactive learning environments*.

1 INTRODUCTION

Game jams continue to grow in number and participation each year. With Global Game Jam holding the largest physical location-based game jam event as well as the multitude of online game jams happening every day, there is endless opportunity to participate in these events. Game jams as part of the larger hackathon phenomenon have created a large cultural impact that has encouraged innovation and continue to generate a community around its events [2][12].

In this paper, we analyze participant change in self-described confidence over the course of the game jam event. We surveyed participants of three local game jam locations about their change in confidence and thoughts about their game making skills.

2 BACKGROUND

In this section we review other effects game jams have that have been studied in the past.

2.1 Learning Aspect of Game Jams

Game jams have been studied for their educational value. They have been shown to increase student performance in computing courses by half a letter grade [4]. Apart from a boost to grades, they have been used as a direct means to teach rapid prototyping and have been used as a graded project within a game design course [3][8]. There have also been explorations in using game jams to promote STEAM fields to younger students [5][10]. Furthermore, game jams have been investigated for their value towards student creativity by analyzing the events' intrinsic motivations, level of participant autonomy, and constraints [6].

Figure 1: Veterans Day Game Jam 2016

2.2 Motivations behind Game Jams

The motivations behind participating in game jam and hackathon events have been collected and compared. Many different motivations have been measured and compared for correlation. The motivations include, learning, networking, social change, winning prizes, free food, building a product, earning glory, finding a team, finding a job, and attracting investors [1][2]. These motivations have also been compared to the age of the participant [12]. Additionally, through in-depth interviews with four first-time game jam participants, their perceived competence, personal characteristics, and social support and perception of the jam community were reported as themes that influenced their participation [7].

Participants game making experience
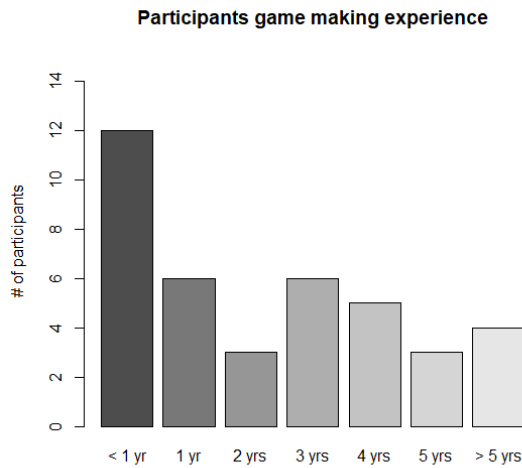
Figure 2: The self reported level of game making experience held by our surveyed participants.

2.3 Social Effects of Game Jams

Researchers have used social network analysis in order to measure the social effects of participating in a game jam. This was done by connecting the participants and assessing the social network metrics [9]. Some studies have also explored the demographic makeup of participating teams and their social dynamics in order to better understand the social impact of game jams [12]. Confidence has been studied in context of social interaction – rather than in context of game making skills as in our study. [11] found that game jams helped increase confidence in being able to articulate ones ideas and carrying out conversations. These studies increased our understanding of the effects game jams have on social behavior.

3 EXPERIMENTS

Previous analyses mentioned have addressed either effects in the long term or information for a single point in time. We seek to gain insight in the the changes in the participants attitude over the span of the jam. During several forty-eight hour events, including Global Game Jam 2019, we examine participant confidence and preparedness in making games at the start, middle and end of the game jam event. All three are regular events, managed by the Cal Poly Game Development club and attendees are primarily college students. We show how these feelings change and discuss how this adds to the explanation of the learning and social effects of game jams.

3.1 Data Collection

Our data was collected from the participants of three local game jams, the Veteran's Day Jams of 2016 and 2018, and the local Global Game Jam 2019 site. Table 1 shows the basic statistics for the events. For each jam, we show number of people attended, total number of surveys collected, and number of individuals who submitted all three surveys in one event, responding to questions on confidence

and preparedness respectively. All of these jams were forty-eight hours long and took place over the course of three days. Each participant was asked to complete three surveys; one on the first day, one during the second day, and one at the end. Participants answered the surveys via a Google Forms link. The first two surveys were made available to the participants at the beginning of their respective days, and the third survey was made available when the jam was completed during the final showcase. For each survey, we asked the participants to complete it before each day was over. We used forty-eight hour jams as opposed to twenty-four hour jams because we wanted to gauge the changes in each participants attitude over a longer period of time.

The two primary variables we were collecting in each survey were the participant's perceived confidence in their game making ability, and their perceived preparedness for a game jam. Perceived confidence was measured using the following scale: "none or very low confidence", "low confidence", "moderate confidence", "high confidence", and "extremely high confidence". Perceived preparedness was placed on a scale from zero to ten. We modified the question about preparedness across the three surveys the participants were given. In the beginning survey we asked if they were prepared for the jam they were about start, we asked if they still felt the same way in the middle survey, and we asked if they felt prepared for their next game jam in the ending survey.

The surveys given during each of the three game jams also remained mostly similar, with the only difference being a missing question in the 2016 Veteran's Day Game Jam surveys. This question simply asked the participants to explain their answers to the above questions in a short answer format. The lack of this question does not detract from our overall findings, it only limits the scope of inference in our data collection for this specific game jam.

4 RESULTS

Over the course of three forty-eight hour game jams, 107 surveys were collected. There were some participants who did not complete a survey for each day of the event they attended. When comparisons about the change in answers of each participant were made, only participants completing all three days' surveys were used: 26 individuals for the confidence question, and 17 for the preparedness question. When over all comparisons were made between each day all participant surveys were included. The data set used is mentioned in the descriptions for the following figures.

4.1 Demographics

Several questions were asked on each day 1 survey in order to provide a picture of who our participants were. The gender breakdown of our participants was 76% male and 24% female. The breakdown to questions on participants' game making experience, previous games made, and previous game jams attended are shown in Figure 2, Figure 3, and Figure 4 respectively.

4.2 Perceived Confidence in Making Games

Figure 5 and Figure 6 show the changes in confidence observed over the course of the game jam events. Both figures represent the combined set of participants who completed all three surveys for the game jam they participated in, 26 in total. In Figure 5, we see

**Table 1: Participation in three game jams studied.**

| Event	Year	Jammers	Surveys	Confidence subjects	Preparedness subjects
Veterans Day Game Jam	2016	22	32	9	0
Veterans Day Game Jam	2018	17	27	6	6
Global Game Jam	2019	32	47	11	11
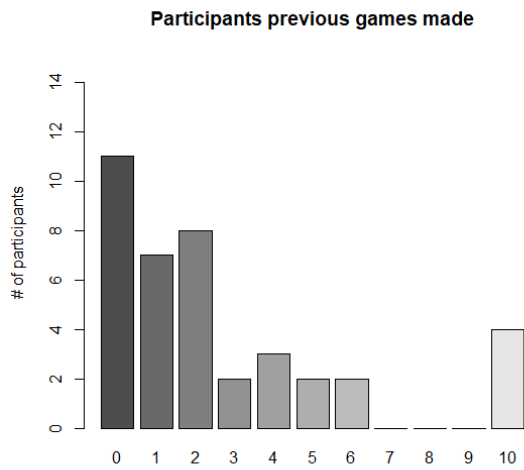
Figure 3: The self reported number of games made by our surveyed participants.
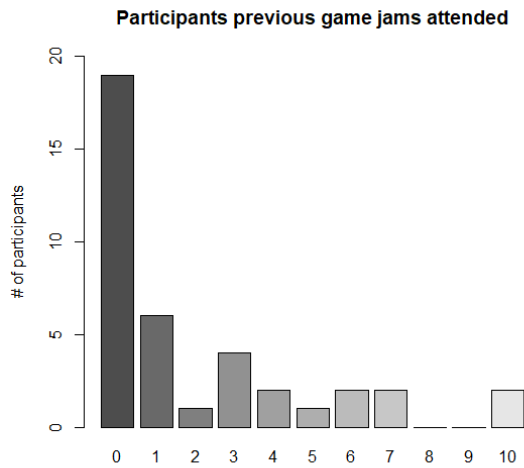
Figure 4: How many previous game jams attended by our surveyed participants.
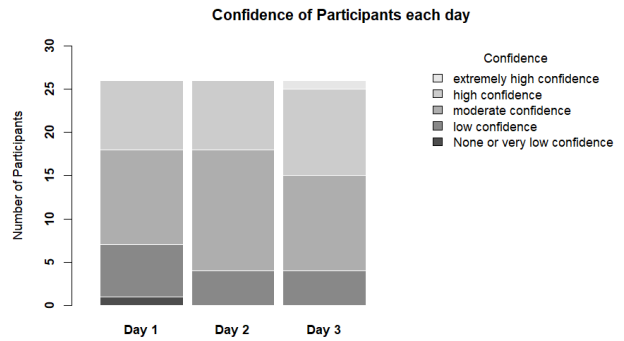
Figure 5: The confidences reported by individuals each day shifts towards higher confidence. The darkest portion of the plot, representing no confidence disappears after day 1 and is replaced by higher confidence, which is represented by the lighter color portion of the bar graph.
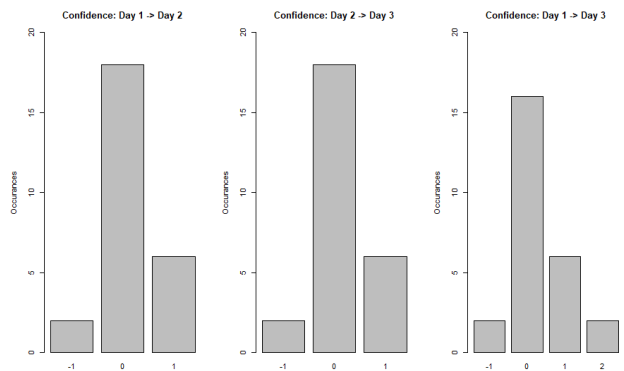
Figure 6: These bar graphs display the occurrences of participants change in confidence from day 1 to day 2, day 2 to day 3, and day 1 to day 3, respectively. It can be seen that several participants reported an increased confidence in subsequent days.

participants move towards increased confidence in their abilities by the end of the jam. Looking at individual participant's change in confidence, Figure 6 counts the occurrences of a change in confidence between days of the game jam. A portion of the participants
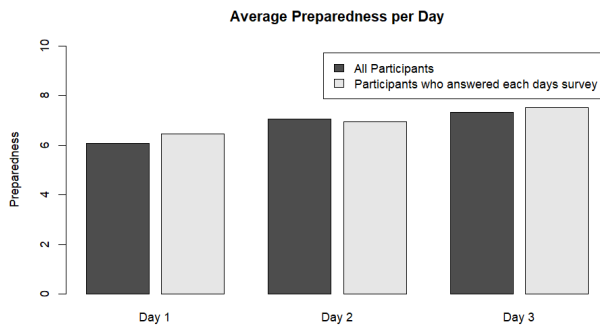
Average Preparedness per Day

Figure 7: This bar graph shows the average preparedness reported by participants each day. It shows a slight increase as the game jam event progressed.
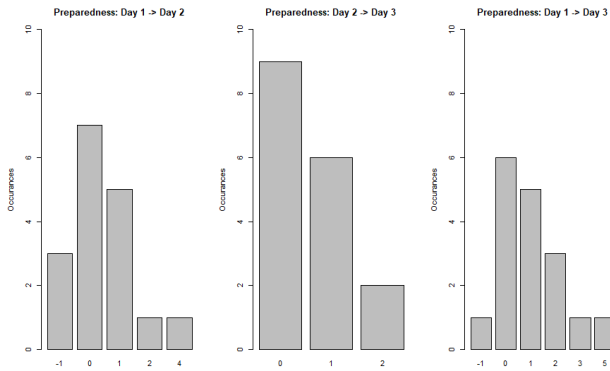

Figure 8: These bar graphs display the occurrences of participant change in preparedness from day 1 to day 2, day 2 to day 3, and day 1 to day 3, respectively.

reported an unchanged confidence throughout the game jam. However, the participants that do change in reported confidence are nearly all increases in confidence.

4.3 Perceived Preparedness

Figure 7 and Figure 8 show the changes in reported preparedness observed over the course of the game jam events. In Figure 7 we look at the average reported preparedness each day of all our participant surveys (darker bars) and the averages of just the participants that answered all three days' surveys (lighter bars). The set of participants who answered each day's survey was 17 in total. In both cases, the average level of preparedness participants felt increased by the end of the game jam. The individual participants' change in reported preparedness between days is described in Figure 8. We see a portion of the participants reported preparedness remains unchanged but over half reported an increase in preparedness for game jams.

Table 2: Free Response: why/why not does the participant feel prepared?

Response	Occurrence
Day 1: Class/Tool Experience	18.5%
Day 1: Game Making Experience	07.4%
Day 1: Game Jam Experience	33.3%
Day 2: Peer Interaction	15.0%
Day 2: Comfortable with Tool	20.0%
Day 2: Happy with Progress	35.0%
Day 3: Mentions Learning	25.9%
Day 3: Mentions Peers	14.8%
Day 3: Mentions Completing/Reaching Goal	14.8%

4.4 Free Response Analysis

In table 2 there is breakdown of the reasons thought to be given by participants as to why they had chosen their level of preparedness. We see that participants attributed their initial preparedness primarily to past game jam experience and secondly to experience gained from class or with a specific tool but not necessarily experience gained by making games. After participants have gone through a portion of the game jam we looked for activities that may have occurred since the beginning of the event that participants may attribute to their new feeling of preparedness. We saw many mentions about participants satisfaction with their progress on their second day. Lastly, we look at what participants may attribute to their preparedness for a future game jam and see mentions to learning, peer/team interaction, and achievement.

5 CONCLUSION

Through this study we noticed a trend of increasing confidence and preparedness in the participants as the game jams progressed. The trend towards increased confidence and preparedness, and the shortage of cases of decreased confidence makes this observation promising. Based on these results, we believe that game jams have the ability to boost the confidence of their participants, and that further study should be conducted.

6 FUTURE WORK

Future work would include an increase in the sample size of surveyed game jam participants in order to confirm the results of this paper and allow for statistical analysis. We would like to collect data from a larger and possibly international pool of participants. Furthermore, we would like to revise our questions to include more general questioning to the participants feeling of confidence and mood to see if the feelings game jams instill can translate towards activities outside of the direct context of the event, things other than game making.

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