What Motivates Different People to Participate in Game Jams?

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Abstract. *Game jams have been attracting an increasingly diverse audience, with thousands of participants getting together to build game prototypes every year. However, little is understood about these people's motivations to participate in such events and how their motivations differ according to their type of involvement with game development. Through a large-scale survey with attendees of a global-scale game jam, we found that indie developers are the ones most influenced by social motivations, while students and hobbyists favor the opportunity to strengthen technical skills more than other groups. Our findings provide a better understanding of the motivations for participating in game jams by studying these motivations across different groups of participants.*

1. Introduction

Game jams can be defined as a *"short game creation event with design limitation and having the results shared publicly"* [Kultima 2015]. Jam participants, so called *jammers*, typically engage in challenges that are both goal-driven and resource-limited [Pe Than, P. et al. 2018]. In this context, game jams are becoming increasingly popular [Kultima 2015]. Such events may be competitive or non-competitive and may also differ on whether participants collaborate by interacting face-to-face or remotely [Pe Than, P. et al. 2018]. *Jammers* typically organize themselves in teams and work long hours on a specific problem to develop playable game prototypes.

People who meet and collaborate in game jams share similar but different skill-sets [Kultima 2015] and may be involved with game development in different ways. Trainer et al. [Trainer et al. 2014] argue that a mix of participants with different backgrounds not only decreases average productivity, but may cause experts to take the time to assist newcomers instead of coding, thus raising conflicts of expectations among participants and organizing institutions. Hou and Wang [Hou and Wang 2017] studied two civic data

hackathons and found that most participants did not have enough knowledge to make effective contributions, and these participants hoped to learn new skills at the event. Therefore, expert participants needed to sacrifice their time to help newcomers, causing tensions between participants' expectations.

Understanding the motivations of different groups of jammers is crucial for managing those tensions and contributing with strategies that organizing institutions can use to successfully meet the expectations of each participant group. Although there are studies on time-bounded events(e.g. [Hou and Wang 2017, Trainer et al. 2014]), to the best of our knowledge there are no studies that focus on understanding and comparing motivations among groups with different types and extents of involvement with game development. To bridge this gap, we pose the following research question: *How do the motivations differ across distinct participant groups?*

The rest of the paper is organized as follows. The next section presents the associated previous research on this topic. This section is followed by our methodology Section 3 and findings Section 4. Finally, we present our conclusions and ideas for future work in Section 5.

2. Background

2.1. Motivation for participation in the CSCW literature

Reasons for participation have been studied in a plethora of contexts, e.g., online communities and crowdsourcing [Kobayashi, M. et al. 2015], social media platforms [Semaan et al. 2015], and joining a particular mobile ecosystem [de Souza et al. 2016]. Thus, based on these previous studies we identified four main categories of motivations that have been reported in many domains, namely personal, social, technical, and business-oriented motivations. (i) **Personal motivations** are associated with a sense of autonomy and enjoyment of work [Kobayashi, M. et al. 2015, Semaan et al. 2015]. For instance, feelings of curiosity or fun are deeply associated with personal motivations [Kobayashi, M. et al. 2015]. (ii) **Technical motivations** are associated with competence development and skill acquisition [Gama 2017], and have been reported in other domains, for instance, as influential motivators for software developers to adopt certain technologies and platforms [de Souza et al. 2016]. (iii) **Social motivations** that present the participants' interest in meeting new people, working with friends or co-workers, among several interaction factors during the event [Semaan et al. 2015, de Souza et al. 2016], and have been studied in various contexts, such as crowdsourcing [Kobayashi, M. et al. 2015]. (iv) **Business motivations** include the search for knowledge on how to start the company itself, the possibility of establishing partnerships and finding talented people [de Souza et al. 2016].

2.2. Motivations to attend game jams

Game jams are considered by many an important phenomenon [Kultima 2015], but what are the motivations to attend these events? Reng et al. [Reng et al. 2013] studied participants of the 2013 Nordic Game Jam (NGJ) and found that the main motivators were (i) to make games and (ii) to meet people who share common interests. They concluded that the social aspect of the game jam helps fulfill the desire to learn more about making

games or specific game development disciplines (for example, programming). Indeed, there is a strong technical learning component associated with the decision to participate in game jams [Preston et al. 2012]. Preston et al. [Preston et al. 2012] indicate that these events are important to build students' technical skills and to contribute to their academic success in a game design and development course.

In this context, we sought to understand why people voluntarily participate in game jams. Differently from previous research, we compare the motivation of people with different types of involvement with game development. Our findings contribute to the literature on time-bounded events [Pe Than, P. et al. 2018], and provides a better understanding of the motivations for participating in game jams by studying these motivations across different groups of participants.

3. Research Methods

3.1. Contextualization

Our research was conducted with participants of the Global Game Jam 2018 (GGJ 2018). This event took place in the beginning of 2018 and according to its organizers, 42,800 jammers participated in the event and 8,606 games were developed. This all took place simultaneously at 803 different sites in 108 countries. In order to familiarize ourselves with the GGJ 2018, two authors participated in the event at the same location. Our participation helped us to get a first glimpse at the dynamics of this type of event, as well as to observe the event participants' behavior and idiosyncrasies. In addition, we showed our questionnaire to the local organizers and to some participants for getting feedback about it. This *in-situ* contact helped us to refine the construction of our survey and its response items.

3.2. The questionnaire and Quantitative data analysis

We then distributed an online survey to the participants, which was divided in two sections. In the first section, we asked questions about personal information of the participants and their professional and academic experience. In the second section of the survey, we asked questions about the participants' motivation to attend the game jam. Due to space limitations, in this paper we will analyze only two closed questions. It is important to highlight that this research is in progress. Then, this paper presents only a clipping of the two closed questions of the survey. In the first question, we ask what is the Prior involvement with game development: (1) No, I have not been involved with game development before the game jam; (2) Yes, professionally; (3) Yes, as an indie developer; (4) Yes, as a hobbyist; (5) Yes, as a student and (6) Others. In the second question, We asked the survey respondents to choose the relative influence of each of the four types of motivational aspects (see Section 2.1) in their decision to attend and participate in the GGJ 2018. In this one, answers were given on a five-point Likert scale (from Not at all influential to Very influential).

We conducted a pilot study with 400 people randomly selected from the 9,600 participants we collected from the event's website. In this pilot, we obtained a 14,25% response rate and about all questions were answered. We also did not get negative comments about the survey. A few days later we distributed the same survey to the remainder 9,200 participants and received in total 940 answers (10,21% response rate).

The analysis of our survey used an approach based on descriptive and analytical statistics. In Section 4.1, we describe the absolute and relative frequency distribution of background information from the sample. We performed an analysis of variance (ANOVA) and a paired t test to evaluate possible differences in the means of each motivational aspect across distinct groups with different types of involvement with game development.

4. Parcial results

4.1. Background information

Table 1 summarizes the background information of our study participants including level of education, involvement with game development, experience with game development, and number of prior game jam participation. In our survey, participants were asked to mark what skills they used during the event, and the results were: Game design (665), Programming (538), Concept (490), Art production (animation and/or 2D/3D Art) (381), Writing (script and narrative) (206) and Audio production (music, sound design and soundtrack) (172). Note that participants could select more than one answer in this item. We also identified, in 536 responses, the country in which our respondents participated in the event. They mentioned 57 different countries, among them: Brazil (115), USA (78), France (71), Italy (20), Israel (18), United Kingdom (18), Spain (16), Germany (13), Indonesia (13) and Canada (12).

Tabela 1. Jammers' background information

	Group	N	%
	None	151	16
	Professionally	133	14
Type of Involvement	Indie	126	14
with game dev.	Hobbyist	208	22
	Student	303	32
	Others	19	2

4.2. Results by type of involvement with game development

Our descriptive analysis shows the means (M) and standard deviations(SD) of the motivational aspects that influenced the decision to attend the GGJ. Personal aspects were regarded by our survey participants as the most influential ones (M - 4.28; SD - 0,961), followed by social aspects (M - 4.08; SD - 0,994), then technical aspects (M - 3.86; SD - 1,149), and finally business aspects (M - 2.58; SD - 1,273). A set of paired t-tests was applied for considering each possible paired combination among the motivations aspects. All the means are significantly different ($p < 0.01$).

We also explored the means of motivational aspects for each groups of participants formed by the type of involvement. To determine whether the groups of involvement type have different means of motivation aspects, 4 individual analysis of variance (ANOVA) were performed separately - 1 for each motivational aspect as a dependent variable. The post hoc test used in this case was the Scheffe's test (see Table 2). For the technical motivation, professionals presented the lowest mean of technical motivation (3.59^a) compared to the other groups studied, besides being significantly different (p<0.05) in relation to the hobbyists (3.93^b) and students (4.05^b) - the highest means for the technical motivation. These results may suggest that students and hobbyists are more influenced by technical

aspects when deciding to participate in game jams. Meanwhile, professional developers are less influenced by these aspects. On the other hand, students presented the lowest mean of social motivation (3.9^b) and showed significantly different in relation to indie developers (4.31^a) - the highest means for the social motivation. Similarly, these results may suggest that indie developers are more attracted to the social aspects of game jams, while students are less motivated by these aspects.

Tabela 2. ANOVA test of Motivational Aspects inter Groups

Group	N	Motivational Aspects (Means)			
		Business	**Technical**	**Social**	**Personal**
Professionally	133	2.59	3.49^a	4.23	4.22
Indie	126	2.87	3.74	4.31^a	4.39
Hobbyist	208	2.52	3.93^b	4.04	4.37
Student	303	2.48	4.0^b	3.9^b	4.24
None	151	2.62	3.83	4.01	4.21

Note: Values in the table represent the mean of the motivational aspects in each sub-sample. Different letters in the same column shows significant difference ($p < 0.05$) among the means of the groups regarding the specific motivational aspect of the column. The type of involvement "others" is not showed in the table because it was not statistically representative (19cases).

Conversely, we explored if each group of involvement type could individually present significant differences among the 4 motivational aspects. To do so, we applied a set of 6 paired t tests comparing the means of motivation aspects two by two, separately for each one of the groups (see Table 4). In general terms, the same order of the motivational aspects found for the full sample was found in each group exclusively—in descending order of the influence in the decision to participate in the event: personal, social, technical and business motivations. Nevertheless, results showed some peculiarities. For professional and indie developers, personal and social were not significantly different(for p<0.05), which suggests that both groups value social opportunities as much as their personal motivations. Still, students and hobbyists presented no statistical difference for social and technical aspects(for p<0.05). It is noticeable the low general influence that business aspects had on the decision to take part in the game jam for all groups. Summary, as a result of our statistical analysis, we can suggest that:

- Students and hobbyists were the ones most influenced by technical aspects, while professional developers were the ones less influenced by those aspects.
- Indie developers were the group most motivated by social aspects while students were the group least motivated by this same aspect.
- The overall order of motivational influence for participation in the GGJ was personal, social, technical and business, from the highest to the lowest. However, personal and social motivations are equally important for professional and indie developers. Meanwhile, social and technical motivations are equally important for students and hobbyists.

5. Conclusions and problems found

Game jams are becoming increasingly common and have gained the attention of the CHI and CSCW communities. This paper can provide some insights about the motivations from jammers to participate in these events. To the best of our knowledge, our study is the first to report and compare the motivations of jammers from different type of involvement with game development. As work in progress, all survey questions were analyzed and we are validating our results with jammers and organizers of GGJ. In future work, we plan to

define a study design to conduct a longitudinal research about transition between extrinsic and intrinsic motivation or even amotivation(i.e., a state of lacking motivation to engage in an activity) acording Self-Determination Theory[Ryan and Deci 2000]. In addition, we also plan to examine other types of collocated and intensive events and study the types of interactions that are performed by participants before, during, and after those events.

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