

The Evolution and Significance of the Global Game Jam

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ABSTRACT

The Global Game Jam (GGJ) [9] is the world's largest game development activity (game jam). Every year since 2009, thousands of computer game enthusiasts participate in this forty-eight hour challenge to make games around the same theme. While game jams, hackathons, and game festivals existed before GGJ, and continue to proliferate, GGJ 2009 was perhaps the first time such events were held in multiple physical spaces (23 countries) at the same time. In this paper, we track the growth of GGJ using multiple dimensions, and discuss the research and teaching potentials and challenges of this popular activity.

Categories and Subject Descriptors

K.8.0 [Personal Computing]: General – *Games*; K.3.2 [Computer and Information Science Education]: *Computer science education*

General Terms

Design, Experimentation, Human Factors, Languages.

Keywords

Global Game Jam, Game Design, Programming.

1. INTRODUCTION

GGJ involves gatherings (game jams) of participants organized by volunteers in more than 60 countries and over 300 locations (jam sites) [8]. The event brings together thousands of game enthusiasts with different skills to make games with a common theme and some optional diversifiers [11].

Game jams have the potential to provide an effective and focused experience and participants gain valuable skills in prototyping and collaboration [18]. The collaborative and community based environment that the GGJ provides supports creativity and learning and establish spaces that support the independent game development ecosystem [6].

Initially the participants were from International Game Development Association (IGDA) chapters, Universities and small game development studios [22] but now also include participants from companies, computer clubs, training centres, Colleges, Polytechnics, and High Schools [14]. Some common elements can be observed in many game jams. These are [18]:

1. The goal is to develop small experimental games within a limited timeframe (for example 24 or 48 hours).
2. All games developed during the game jam must share a common

theme, previously unknown to the participants.

3. These events are generally open to anyone who can contribute to the development of the game. However, some game jams include an age restriction or have school affiliation requirements.
4. Team formation prior to the event is discouraged, and the team size is usually constrained to less than 5 people.
5. The events encourage the development of games for any device and the teams can generally choose their own development platforms.
6. In some locations, there is a finale presentation where the best games will be selected by other participants, an audience or a panel. The GGJ is that is not a competition – it is closer to music jam events [22].

Although some jam sites include a competitive element for their local participants, the GGJ does not offer any rewards for the games developed during the game jam. Moreover, the games are not judged by a central expert panel, although no restrictions are made on local game jams providing audience choice awards. When the jam is concluded the development teams are asked to upload their game to the GGJ website. This site enables other game jam participants and the general public to play these games, be inspired by them and support them. A rating system has been provided in the past. As the ratings are from other game jam participants and the general public, the rating system provides a very public feedback mechanism for the participants and can provide considerable motivation to make a product that is enjoyed by the end-user. This according to Shin et al. [22] can serve as a reflective learning experience for the developers of the game.

2. THE EVOLUTION OF THE GGJ

Game jams have existed for years. Of the earliest notable ones achieving significant publicity, we can name Indie Game Jam (IGJ) in March 2002 [23], Ludum Dare (LD0) in April 2002 [24], the inaugural Nordic Game Jam (NGJ) in January 2006 [19, 22, 25], and the Toronto Game Jam #1 (TOJam) in May 2006 [26].

At the NGJ 2006, eight games were made by the forty participants who consisted of representatives from the local video game development industry and students and faculty at the IT University, Copenhagen (ITU) [19].

Using primarily the Nordic Game Jam as a template, the GGJ was created by Susan Gold, Gorm Lai and Ian Schreiber in 2008 [10]. As with Ludum Dare, the participants are international. Unlike other jams, GGJ has a physical presence requirement and has been held in dozens of locations each year. The first GGJ was held in January 2009 and attracted 1650 participants in 23 countries. The next year (2010) the participation had grown to over 4300 jammers in 39 countries [2, 7].

In 2011, the GGJ attracted over 6,500 participants from 44 countries at 169 sites who created over 1500 games in total [2, 15]. GGJ organizers and participants are asked to complete a survey, usually after the game jam. From the 6,500 participants of GGJ 2011, 953 started the survey and 851 completed it (13%). The survey was performed online using SurveyMonkey. The survey sought demographic information, the level of experience the participant had the tools used, team formation, and the experience the participant had and their perceptions of the 2011 GGJ.

In 2012, the GGJ attracted over 10,684 participants in 242 locations (47 countries). 2209 games were created. The GGJ set the Guinness record for the largest game jam in the world [11].

In 2013, the GGJ saw 16,705 participants from 319 jam sites in 63 countries produce 3248 games [15], eclipsing the previous world record.

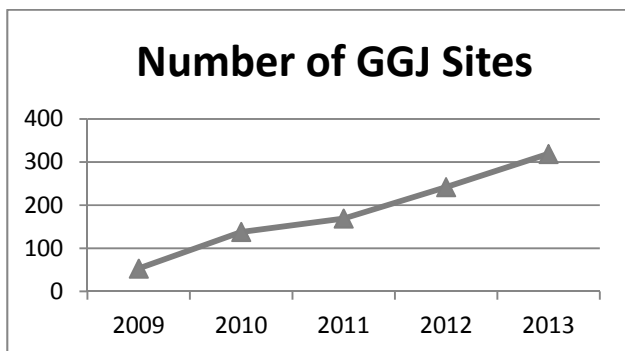


Figure 1. The growth of the Global Game Jam sites

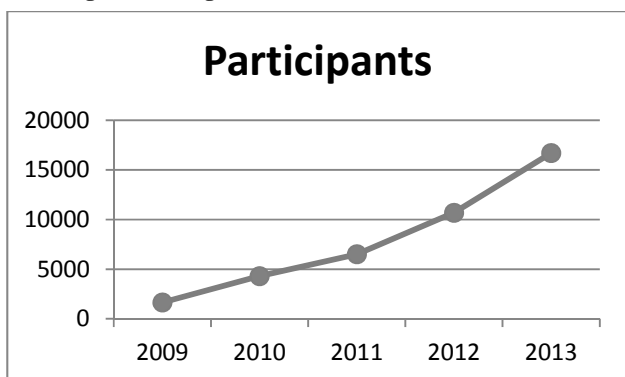


Figure 2. The growth of the Global Game Jam participants

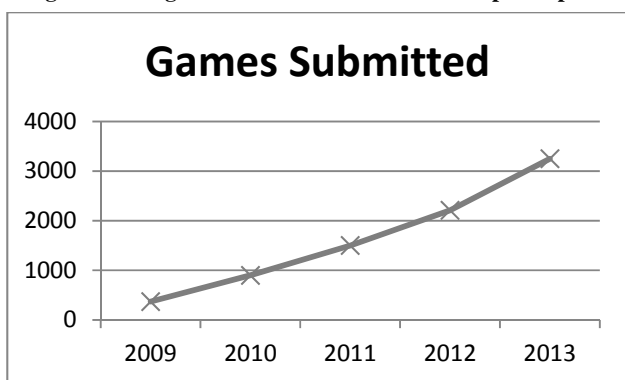


Figure 3. The growth of the submitted games

By the end of the GGJ 2013, sixty-three countries were actively

participating. The number of countries for the inaugural GGJ in 2009 was 23 [10].

Initially the GGJ was heavily dominated by US and European participants. In recent years, however, other regions have increased their participation significantly. Brazil and Japan, for example, had only one jam site each in 2009 [6]. In 2013, there were 23 and 17 sites from Brazil and Japan respectively [9]. Similarly the number of African countries participating went from one in 2011 and 2012 to four in 2013. The proportions of world regions represented for the past four GGJ events are shown in Table 1. The top regions are also depicted in Figure 4.

Table 1. Proportional representation (in %) of GGJ participants over four years [5].

Region	2010	2011	2012	2013
N. Africa	0	0	0	1.4
So. Africa	0.96	0.6	0.45	0.27
W. Africa	0	0	0	0.3
Africa-All	0.96	0.6	0.45	1.97
Central America	0	3.19	0.30	2.37
N. America	36.54	42.91	37.44	31.45
S. America	10.81	7.98	12.48	10.85
E. Asia	0.68	2.79	3.07	6.84
S.E. Asia	2.51	4.39	3.57	5.07
S. Asia	1.46	1.1	0.25	1.58
W. Asia	3.06	1.9	3.82	1.76
Asia-All	7.71	10.18	10.72	15.25
Australasia	4.15	3.39	5.89	2.8
E. Europe	0.41	2.2	1.06	1.09
N. Europe	24.0	15.77	13.49	11.39
S. Europe	2.92	5.59	1.86	4.07
W. Europe	12.5	8.18	14.70	17.81
Europe-All	39.83	31.74	31.10	34.36

In general, it can be observed that the number of North American sites is becoming relatively fewer while the number of Western European and Asian sites is growing in relative numbers.

Data in Table 1 is obtained by analyzing weblogs of the GGJ website and calculating the number of page views from different regions and years to "game submission" pages for appropriate GGJ events [5].

3. THE SIGNIFICANCE OF THE GGJ

As spectators, participants, and organizers we have considered the potential learning opportunity that the GGJ represents, a corollary of a pedagogic awareness of the considerable benefit of applied and practical learning experiences. Academics and the organizers of the GGJ identified the research potential of the game jam and established the GGJ Research Committee to promote, facilitate, organize, and conduct scientific and technical research activities related to innovation, experimentation and collaboration [12]. Further, the practical and applied nature of the GGJ makes it a potentially excellent venue to use for capstone projects for some institutions.

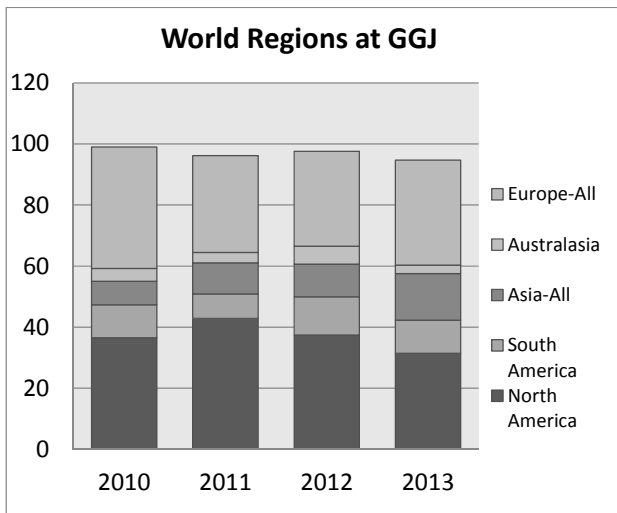


Figure 4. GGJ participation by year and world region

3.1 A New Kind of Research Platform

Due to its global nature, wide range of participants, and the active involvement of industrial and academic partners, the GGJ provides a unique opportunity for studying different professional, educational and cultural aspects of computer games [12]. Among potential areas of research that can be done within the context of the GGJ are [12]:

- Culture, motivation, and the skills sets of the young game enthusiasts who will be the future game developers.
- Communication, collaboration, development and management methods and tools for game projects.
- Effective experiential learning for skills required in game development projects including but not limited to programming, art, writing, management, testing, and communication.
- Regional and/or sub-culture variations in the game development industry with comparative or focused studies.
- Organizational studies for youth and/or volunteer-based activities and events.

Considering such a significant potential, and the limited studies done focusing and using the GGJ as research context, the GGJ Research Committee (GGJ-RC) has been established to promote, facilitate, organize and conduct scientific and technical research activities related to innovation, experimentation and collaboration, on behalf of the GGJ Executive Committee, in order to [12]:

- Promote the value of the GGJ as a global effort that can increase our knowledge of game-related topics and can lead to the development of new ideas and methods.
- Better understand the three P's of game development (People, Process, Products) within the context of the GGJ
- Use the GGJ as an example/experiment to study game development and education, and other related topics in the video game industry
- Use the GGJ as a global effort to study more general topics such as community building, group dynamics, and identity.

- Disseminate and promote the research findings to a wide audience through publications, workshops, conferences, etc.
- Work to create a better forum or conference for the above activities

The GGJ-RC helps researchers conduct their studies and publish the results by providing global surveys that include questions by approved research projects, inviting all GGJ participants to respond, collecting and passing the data to researchers, and finally organizing means of disseminating the research findings [12].

Researchers find access to thousands of jammers valuable. By consolidating the various electronic data collection efforts, and disseminating them in a uniform manner, the GGJ-RC hopes to support multiple ongoing academic research investigations efficiently.

In 2012, the GGJ-RC sent out its first public Call for Proposals and approved three research studies [12]:

- Key success factors for developing a videogames industry in South America
- Learning Aspects of the Global Game Jam
- Music in Video Games

In 2013, this grew to eight approved proposals:

- Gender and Global Game Jam Participant Motivation
- Experiential Learning in a Game Jam
- The Latin American Independent Communities of Creators of Electronic Games compared to the Large-scale Industry
- Team Dynamics and Development Processes of the Global Game Jam
- Level Up
- Investigating the Lack of Accessibility in Game Design
- Game Design Processes in Rapid Game Development
- Enhancing Experience with Digital Design and Production Tools in High-pressure Rapid Prototyping Environments.

3.2 Survey of GGJ Research Publications

While the Global Game Jam has been the subject of numerous presentations at events such as Game Developers Conference Educational Summit and SIGGRAPH, a few researchers have used it for academic investigations [3, 18, 22].

Shin et al. [22] review these potentials as a collaborative learning process and suggest some design ideas for Jam organizers to set up events. The suggestions cover topics such as process, observation, testing, team development and localization, and aim at promoting collaborative development. Their work is within the context of a local game jam site in Fukushima, Japan. Musil et al. [18] suggest that game jams provide an effective and focused experience and that participants gain valuable skills in prototyping and collaboration. They study game jams as “composition of design and development strategies: new product development, participatory design, lightweight construction, rapid experience prototyping, product-value focusing, aesthetics and technology, concurrent development and multidisciplinary.” They propose that “although game jams are normally used for rapid prototyping of small computer games, the constellation of the mentioned elements provides a powerful technique for rapidly prototyping new product

ideas and disruptive innovations” [18].

It is possible to utilize games and game jam events to foster creative thinking and innovation and expand computational thinking among participants. Not only do participants brainstorm many game designs during the initial hours of a game jam, there has been research done that shows creativity can be enhanced through idea generation games such as GameSpace [17]. In fact, this technique of idea generation has been used specifically at the Finnish GGJ venues in 2010 and 2011 [16].

Preston et al. [20] demonstrated that there was a positive correlation between game jam participation and formal academic performance in courses within the first two years of students’ studies. Students who do not attend game jams have a lower GPA than the average GPA of their peers [20]. Arya et al. [3] used the results of the GGJ 2012 participants’ survey to show a strong learning aspect in the game jam experience particularly with respect to the process familiarity and confidence improvement. They also link certain process decisions such as brainstorming and forming teams with new people to the levels of satisfaction with results and satisfaction with the overall experience.

3.3 Capstone Projects

To facilitate an applied and practical learning experience, several educational institutions include a final year project in a degree program (a capstone project). In our experience, these capstone projects require students to create a product and solve (or research) a particular technical or business problem.

This can provide students with a meaningful learning opportunity and in some cases a potential employment opportunity, as well as an opportunity to consolidate the learning from their formal education. Capstone projects also allow students to learn skills that are often not included in traditional course-work [4]. We have found that students learn soft-skills (team-work, communication skills, customer awareness), a lot easier when delivered through a practical and applied program [13].

However, we have found it difficult to find capstone projects for students undertaking a degree with a major in game design. The process of making a video game usually extends well beyond a single academic term and development is typically undertaken by a team (or in many cases several teams) of developers. Therefore, this makes it very difficult to provide the student with a tangible and meaningful project where it is possible to identify or demonstrate to faculty what has been produced and what the student has learned. In addition, many engineering oriented programs put great emphasis on customer interaction and requirements engineering, things that are typically underemphasized in the practical, rapid-prototyping environment of the GGJ.

The GGJ provides an opportunity for students to join an existing team or form their own team. These teams are frequently multi-disciplinary, and this enables students from a variety of backgrounds and skills to make a valuable contribution [4]. Further, the time constraint ensures rapid development and project completion [4]. More importantly, because this is a non-commercial enterprise, there is no commercial risk if the project is not completed or does not meet a commercially acceptable standard.

There are a few risks associated with allowing students to undertake team based projects [1]. One concern is the problem with team members not contributing to the project equally (free-riders) [1]. In the video game industry if a team member does not contribute to a project as needed, these team members typically are asked to find

another team or another employer. However, our experience has shown that with student projects, this is not always practical as exclusion from a team can mean that the student may not graduate in that given year. Because the GGJ is limited to just one weekend, if a student is not able to contribute to or participate in a team, there is usually adequate time to find a meaningful project for them to complete before the end of the academic year.

3.4 Independent study and class projects

Independent study credits are a natural fit for GGJ activity. In one case at the California Polytechnic State University, one unit of independent study credit was offered to students who both participated in GGJ, and later agreed to improve their game the rest of the term according to the instructor’s feedback [21]. Interestingly, even though the GGJ is a single weekend, more hours could be spent on that project than would otherwise be spent on a 10-13-week long course.

Similarly, GGJ-based class projects in appropriate game courses are an option for educators. The challenge here is the timing and the theme of the event. Both the timing and the theme must be compatible with the course for this to work. Attempts to pre-constrain the GGJ experience by conforming the activity to course requirements are not likely to succeed.

4. CONCLUSIONS

In its fifth year, the Global Game Jam is a relatively young activity, but one with tremendous community support and enthusiasm. It is clear this community is growing and becoming more diverse and less US-centric.

We explore the benefits the GGJ can provide for research and teaching activities. With a unified data-gathering mechanism the GGJ-RC hopes to accommodate more projects and more jammer interaction for the benefit of the research projects. We also discuss some methods where this hitherto largely extracurricular activity, can augment the classroom experience in various forms.

In conclusion, the continued growth and popularity of the GGJ makes it an ideal vehicle for game-based research and education, combining the classroom theory with the practical experience and constraints of the GGJ.

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