Game Jams as an Opportunity for Industry Development

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ABSTRACT
Game jams are social events involving the integration of enthusiasts from various game making disciplines (e.g. programming, art, design) to make games under constraints, such as a short fixed time (Goddard et al. 2014) and a common theme (Fowler et al 2013).

Research on game jams has suggested that they have the potential to provide an effective and focused experience and that participants gain valuable skills in prototyping and collaboration (Fowler et al. 2013), exploring technology limits, experimenting with interfaces, and exploring themes (Goddard et al. 2014).

This paper investigates whether game jams have an effect on the sense of community among developers in a weak and unsupported development ecosystem. Results from two local game jams suggest that they can in fact provide an opportunity for increasing awareness, familiarity, and participation amongst community members, and open up opportunities for identifying potential work partners – all essential elements in the move towards the development of a local games development industry.

Keywords
Game jam, industry development, game development

INTRODUCTION
The digital games market in Australia is substantial and growing. Upwards of AUD$2.4 billion was spent on Hardware, Accessories, Software, Gamecards, Mobile games, subscription services, and digital downloads in 2014 alone (IGEA 2015).

A large proportion of the population engages in some form of gaming, and 98% of houses with children have video games (IGEA 2015). Going beyond this, there is growing recognition that gaming can be more than a passive form of entertainment, and that engaging in gaming can bring about societal change, improved educational outcomes, and improved health (IGEA 2015).

Gaming degrees and courses are becoming accepted as rigorous programs within many Universities and institutions, producing graduates with the technical and design skills, and practical work experiences required by this industry (Learn.org 2011, gamesindustry.biz 2014).

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Despite the interest and enthusiasm for gaming amongst the general population, the Australian games development industry remains relatively small, when compared to the Australian ICT industry that employs 297,000 individuals (ACS 2013). For example, the most recent data provided by the Australian Bureau of statistics (ABS 2013) suggests that digital game developers employed only 581 persons at end June 2012. During 2011–12 these businesses generated $89.4m in income of which end-to-end digital game development income accounted for 49.6% (or $44.4m) and digital game development services income accounted for 48.5% (or $43.4m). During 2011–12 digital game developers produced 245 games.

The small nature of the Australian games industry may, in part, be due to the removal of the Australian Interactive Games Fund, a $20 million Federal fund originally allocated to help support and grow the burgeoning local development scene in 2012. Whatever the reason, the Australian game development industry remains small, and a top-down approach to increasing size seems absent, despite an increasing number of skilled workers ready to work in this industry.

This paper investigates the benefit of a game jam as a bottom-up mechanism for increasing the sense of community required among developers in a weak and unsupported development ecosystem, to move towards the development of a local games development industry.

GAME JAMS

Game jams brings together game enthusiasts with different skills to make games with a common theme (Fowler et al. 2013). Game jams are social events involving the integration of various game making disciplines (e.g. programming, art, design) to make games under constraints, such as a short fixed time (Goddard et al.2014).

Research on game jams has suggested that game jams have the potential to provide an effective and focused experience and participants gain valuable skills in prototyping and collaboration (Fowler et al. 2013), exploring technology limits, experimenting with interfaces, and exploring themes (Goddard et al.2014).

Despite the growing recognition of game jams as beneficial to providing applied learning experiences, encouraging social interaction, and encouraging creativity in the software development process (Fowler et al. 2013), to date, exploration of game jams as a mechanism to support game development communities and industry development has been absent. In order to address this lack of exploration, the following describes two game jams that were hosted in 2015 in Tasmania, a small and isolated state of Australia, and the impact that these have had on developing a local community of game developers and an outlook towards industry development.

THE NATURE OF THE TASMANIAN GAME DEVELOPMENT INDUSTRY

Tasmania is a small state south of Australia, with a population of 515,000 people. According to the Games Development Association of Australia, only one games development company is listed as active in the state (GDAA 2016). While this listing indicates only members of the GDAA and not all Tasmanian game development studios, this provides an indication of the visibility of the industry in Tasmania.

Prior to 2015, very little was known of the Tasmanian games development industry, in terms of participants, skills, and activity. Given the apparent weak game development ecosystem in Tasmania, which directly affects the motivation of developers and increases a feeling of solitude amongst participants (Tezateser 2015), it was important to bring together like-minded individuals and companies as a first step to developing a community and subsequent industry development.

Tasmanian Game Development Society and TasJam

In 2015, a small collective of Tasmanians that make, contribute to, study, cover, or just love games established The Tasmanian Game Development Society (TasGDS). This society comes together to share knowledge, connections, and opportunities, with the hope of making Tasmania a nationally recognised hub in the games industry (Imms 2015).

One of the core focus areas of the newly formed TasGDS was to identify members of the local community, and promote the growth of this community with an aim of building visibility, collaboration, employment, and output of Tasmanian game developers.

Through analysis of self-introductions of TasGDS members, it is possible to ascertain an approximate understanding of the makeup of the current games industry in the state. Almost the entire Tasmanian industry is made up of independent developers either doing contract work or developing their own titles without traditional publisher funding. Additionally:

- Most developers are focused on mobile game development, with the minority creating PC titles, and only one in the process of development of a current generation console game;
- There exists a number of developers who are e-commuting to perform with businesses located out-of-state, predominately within Australia, but also internationally;
- Recent university game degree graduates are either developing their own projects without funding, or moving interstate or internationally to find employment in the games industry;
- Developers are unaware of their contemporaries and their projects; and
- A large number of members are interested in being involved in development, but are not currently involved in an active project.

To help create more links between individuals and to build collaboration, one activity promoted by the TasGDS was the running of game jams.

The following section will describe the Tasmanian game jams, and data collected throughout that provides insight into their effectiveness as a mechanism to build community and engagement

METHOD

During 2015, TasGDS hosted two game jams within the state of Tasmania. A participation invitation was distributed through social networking services, and by printed

fliers placed around locations likely to be frequented by interested parties, such as at existing hackerspaces, code clubs, and the local University.

The first, named TasJam:Voices was hosted over the weekend of September 12–13 2015 and was Tasmania's first-ever state-wide game jam. Advertised throughout the state through paper-based fliers and social media outlets, TasJam:Voices gained 60 participants, forming 16 teams from Tasmania's three main population areas of Hobart, Launceston, and Burnie. TasJam (Voices) was organised as a joint venture between the Tasmanian Game Development Society, and Startup Tasmania, as part of the Startup Spring festival (Imms 2015).

The themes of the jam were "Voices," and "Access," which were designed to evoke discussions and thinking about diversity, and the importance of having a voice and being heard, no matter who you are or where you're from.

The second, named TasJam:Health, was hosted over the weekend of 14–15th of November 2015. The theme of this game jam was to encourage participants to design a game to achieve a health outcome, and was sponsored by the University of Tasmania. Eighty participants joined TasJam:Health, and 14 games were developed over a 32 hour intense work period.

Immediately after the completion of both TasJams, an online Google Forms survey was made available to each participant in order to gain both qualitative and quantitative demographic information on each participation and elicit feedback on their responses to TasJam. Specifically, the survey included questions of participant demographics, experience in game playing and development, motivation for participating in TasJam, and experience in participating in TasJam. This survey was informed from existing research surveys on game jams (Fowler et al. 2013). A sample of the questions included follows:

Question Topic	**Sample Questions**
Participant Demographics	• What is your age? • What is your gender? • What is your highest education level? • What is your employment status? • What is your study status?
Experience in gaming	• How frequently do you play video games? • Prior to TasJam, have you ever developed a game? • If you have previously developed a game, do you normally develop entertainment games or serious games?
Experiences at TasJam	• Have you previously participated in a Games Jam? • Have you previously participated in a TasJam? • What was your motivation for participating in TasJam? • What skills did you bring to TasJam? • What skills did you develop or improve during TasJam? • Did developing a game within TasJam require you to alter your regular methods of design/development? • Prior to TasJam, how would you rate your typical level of

	collaboration when developing/designing games? • To what extent do you think TasJam provided a safe space to experiment with new ideas and approaches? • To what extent do you enjoy the rapid prototyping experience offered during a Game Jam? • To what extent do you think Games Jam is a useful way to learn about game development? Would you participate in another Games Jam? • If you have created games either as a hobbyist or a professional, how frequently do you work in teams during your game development activities? • To what extent did you trust your team during TasJam? • How much conflict was there in your team during TasJam? • Do you intend to work with the members of your team again? • What tools, if any, did you use during TasJam? • To what extent do you think a Game jam is a viable mechanism for developing a commercial game? • Do you plan to continue to develop your game, aiming at publication?
Familiarity with, and participation in, the Tasmanian Games Industry	• Prior to TasJam, how would you rate your familiarity with the community of other Tasmanian game developers? • After TasJam, how would you rate your familiarity with the community of other Tasmanian game developers? • Prior to TasJam, how much did you participate in the community with other Tasmanian game developers? • To what extent have you increased your professional connections as a result of TasJam? • To what extent have you increased your personal connections as a result of TasJam? • Since TasJam, to what extent do you have a clearer understanding of the skills of others in the Tasmanian Game Development industry? • Since TasJam, to what extent do you have a clearer understanding of the development process of others in the Tasmanian Game Development industry? • Since TasJam, to what extent do you feel closer to others within the Tasmanian Game Development industry? • Have you added any new contacts from TasJam to your social networks? • To what extent has TasJam been useful for finding potential work partners? • To what extent has TasJam been useful for showcasing your individual skills?

Table 1: Sample questions posed to TasJam participants.

TasJam:Voices elicited a response rate of 45% (n=27) and TasJam:Health elicited a response rate of 36% (n=31).

On receipt of the survey responses, the data was analysed descriptively in order to describe and show patterns that were emerging from the data with regards to participants' experiences at TasJam.

FINDINGS

Demographics

The average age of survey participants from TasJam:Voices was 28 years, with a minimum of 18 years and a maximum of 54. For TasJam:Health, these numbers remained similar, with an average age of 27 years, and a minimum of 13 and a maximum age of 50 amongst survey participants.

As shown in Figure 1, both TasJams attracted a highly educated group of participants, with over 70% of participants of both events having attained at least tertiary undergraduate education, if not tertiary postgraduate education.

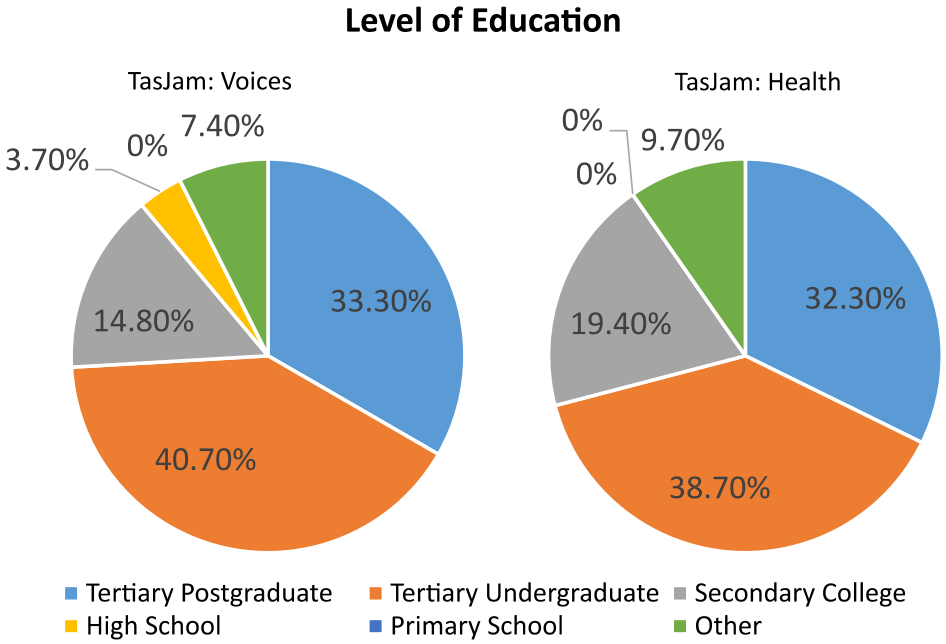

Figure 1: Education level of TasJam participants.

As illustrated in Figure 2, both sets of TasJam participants were currently employed, but less than 20% from each jam were actively employed in the games industry in any capacity. The majority of participants were employed, but not in the games industry, while others were unemployed and indicated they were currently enrolled students.

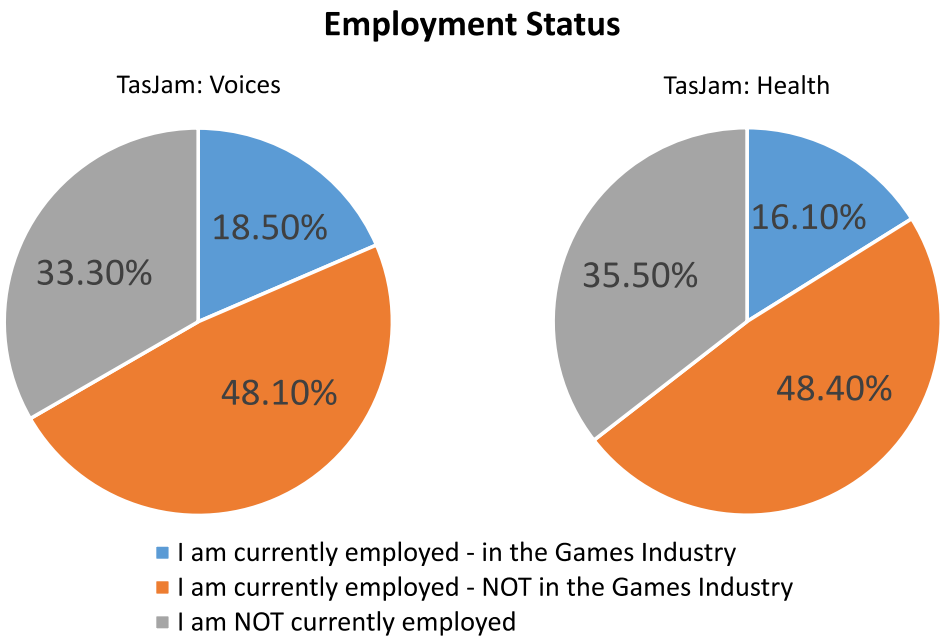

Figure 2: Employment status of TasJam participants.

Gaming experience

As shown in Figure 3, across both TasJams, in excess of 70% of participants considered themselves frequent game players — perhaps not surprising for a games-oriented activity. However interestingly 22.2% of TasJam:Voices participants indicated that they were not frequent players of games, and 18.5% and 19.4% of TasJam:Voices and TasJam:Health respondents respectively indicated they only played games *sometimes*.

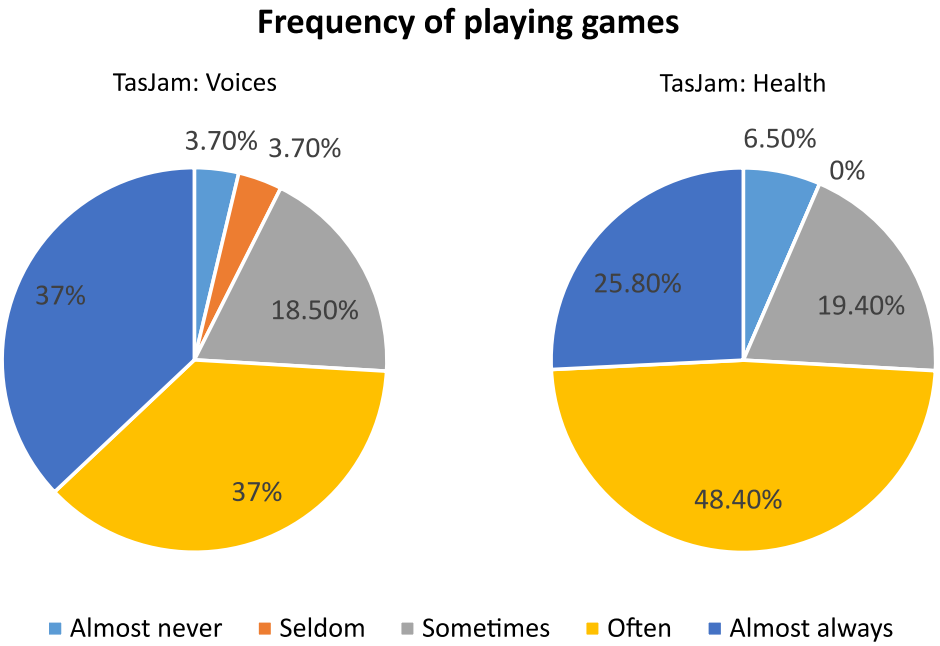

Figure 3: Game playing frequency of TasJam participants.

As illustrated in Figure 4, when questioned regarding the previous experience of participants in games development, only 25.9% of participants in TasJam:Voices has experience developing games in a professional capacity. The majority of participants had developed games, but only in a hobbyist capacity. Interestingly, 14.8% of participants had never participated in games development prior to TasJam:Voices. Similarly only 29% of participants in TasJam:Health has experience developing games in a professional capacity. The majority of participants had developed games, but only in a hobbyist capacity (54.8%) and 16.10% of participants had never participated in games development prior to TasJam:Health. Between jams, there was an increase in professional participants, a reduction in hobbyists, and a small increase in those who had not developed games previously.

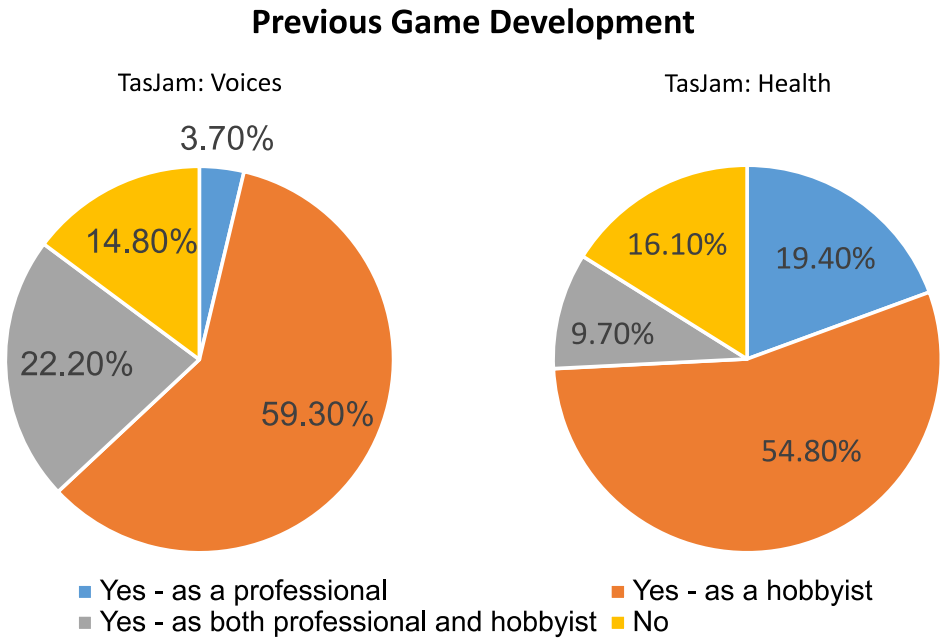

Figure 4: Previous game development experience of TasJam participants.

While the participants did not consist of a large number of professional game developers (of which there are few in Tasmania), many respondents indicated a desire to participate more actively in the game making community, and to gain skills that would support their move towards professionalism in games development. For example, many of the motivations for participating in TasJam relate directly to networking with others in the community, building a local games development industry, and developing skills to enhance their own growth in the game making profession. A summarized list of motivations for attending TasJam is provided in Table 2 below:

TasJam: Voices	TasJam: Health
• To meet others/network • To test skills in a pressure/timed environment • To have a new experience • To gain experience and build a	• To connect with the local games industry/network • To gain new skills • To have fun • To support the local games

portfolio • To enjoy a fun event with similarly minded people • To participate in the building of a local industry • To gain experience in hosting a games jam • To learn some new skills • To showcase existing skills	industry • To encourage children to build game development skills • To develop useful products for society • To meet new people who like the same thing

Table 2: Motivations for participation of TasJam participants.

Skill sets brought to, and developed throughout TasJam

When reviewed according to Fowler et al (2013)'s Global Games Jam skill set questions, across both TasJams there was strong representation of traditional technical skills amongst the participants, with particular emphasis on programming, games design, and user interface skills. This is unsurprising given that most game development activities require such skills from participants. However, there was also a strong representation from artists, project managers, and writers, which are all important skills required in a robust games development industry. Participants in the jams also indicated that the jam was a safe environment for honing existing, or learning new skills, and as illustrated in Figure 5, both TasJams required the development of many of these skills within the context of the intensive game development environment.

Furthermore, given the health-focused topic of TasJam:Health, this jam also saw the inclusion of participants with specific skills in health and medicine that were required for this context, as well as an increase in the development of such skills by more traditional technical or artistic participants.

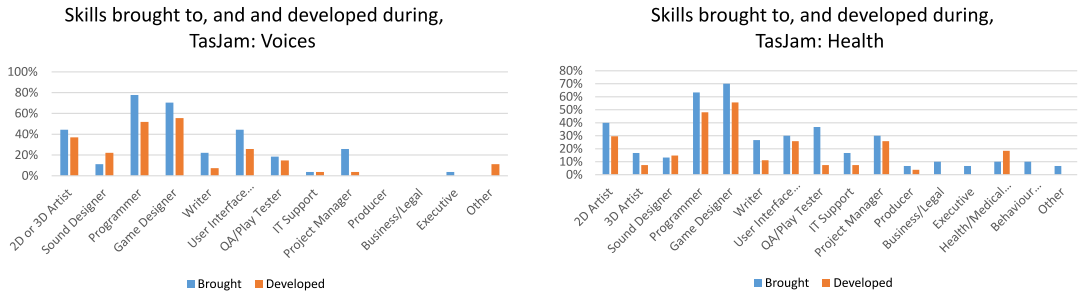

Figure 5: Skills of TasJam participants.

Opportunities for Community Development and Industry Development through Game Jams

When investigating the state of the Tasmanian games development community, each respondent was asked to identify their existing familiarity with others in that community. Results indicated that prior to TasJam:Voices, there was little familiarity by participants of others within the Tasmanian game development industry. In Figure 6, we can see that at least 50% of participants had little or no knowledge of others undertaking similar game development activities to themselves. Immediately following TasJam:Voices, there was a

strong shift towards more familiarity amongst participants, with over 70% indicating familiarity with others in the Tasmanian games development industry.

As shown in Figure 6, when assessed at the commencement of TasJam:Health a few months later, there appeared greater initial familiarity amongst participants with others in the industry, and again, an increase in familiarity of participants was gained as a result of this second games jam.

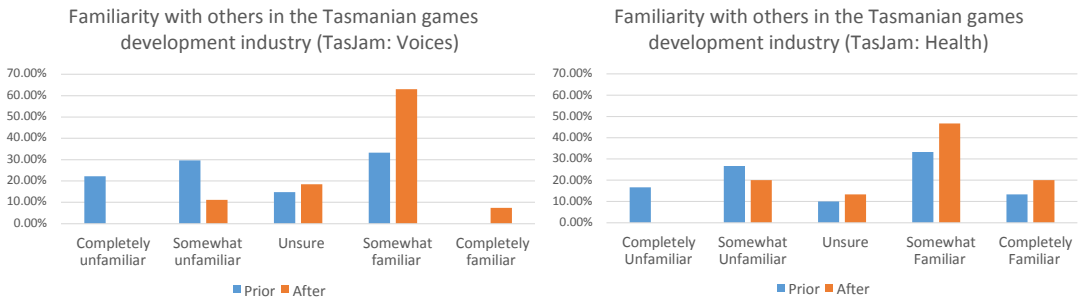

Figure 6: Familiarity between TasJam participants.

When investigating a respondent's interaction with others in the Tasmanian game community, it became apparent that prior to TasJam:Voices, only 7.4% of participants indicated that they participated frequently with other Tasmanian games developers. The vast majority (66.6%) indicated very little participation between themselves and other developers.

Interestingly, a few months later, TasJam:Health results indicated that 20% of participants were interacting frequently with other games developers, and another 46.7% interacting to some extent with others undertaking similar activities (see Figure 7).

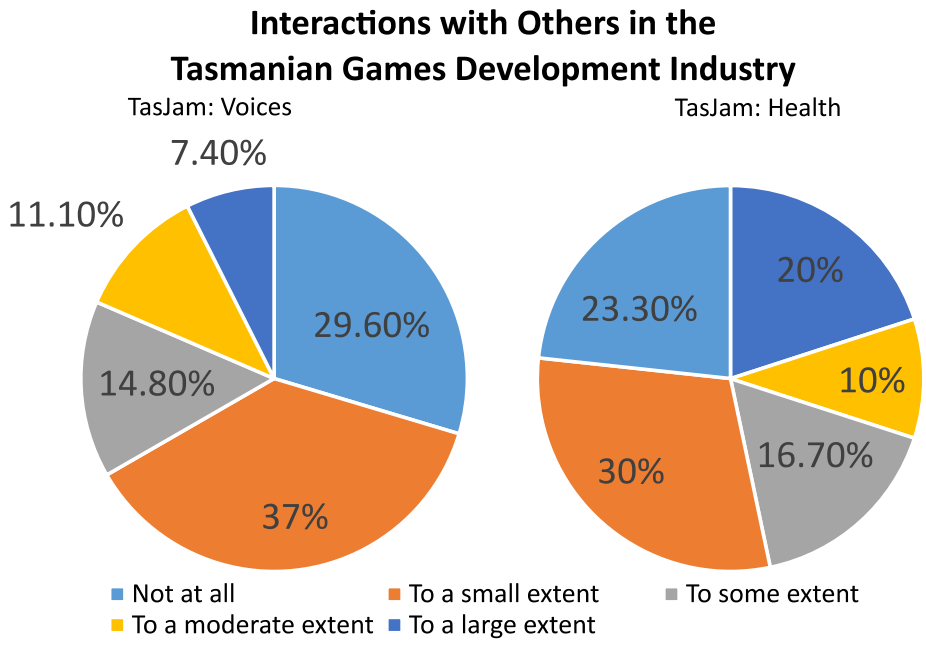

Figure 7: Interactions between TasJam participants.

Respondents were also asked to indicate whether their personal and professional contacts within the community had increased as a result of TasJam. Results, as shown in Figure 8, indicated that after both TasJam:Voices and TasJam:Health, the majority of participants had increased the number of both professional and personal contacts within the Tasmanian game development industry, and these were brought about directly from participating in these jams.

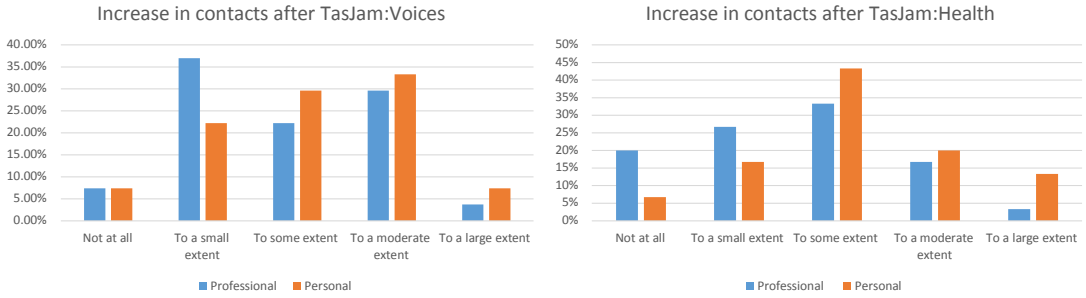

Figure 8: Post-participation increase of contact between TasJam participants.

Furthermore, as illustrated in Figure 9, 63% of participants and 66.7% of TasJam:Voices and TasJam:Health participants respectively added new contacts to their social networks as a result of their attendance.

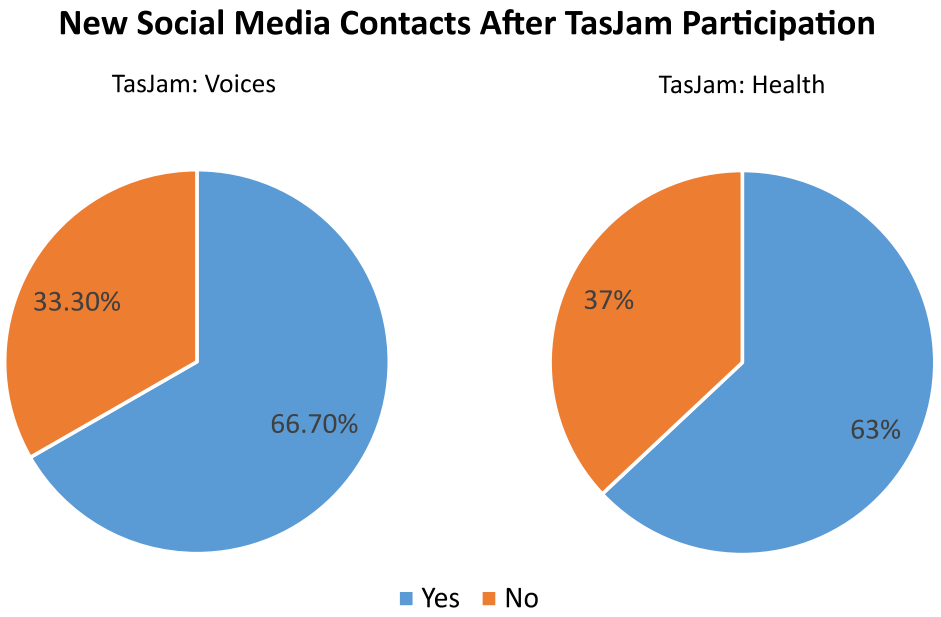

Figure 9: Post-participation Social Network contact of TasJam participants.

Similarly as a result of TasJam:Voices, 92.5% of participants indicated that they also felt closer to other Tasmanian games developers, and 93.3% of TasJam:Health participants

indicated they too felt closer to other Tasmanian game developers as a result of the jam (see Figure 10).

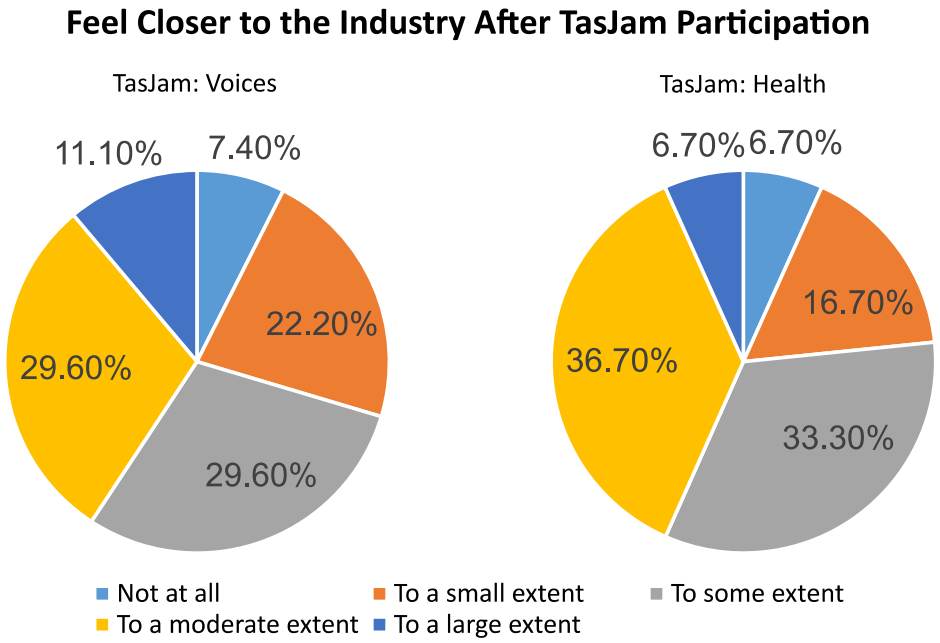

Figure 10: Post-participation industry closeness of TasJam participants.

Finding potential work partners

With regards the usefulness of TasJams to identify potential work partners, 14.8% of respondents indicated that immediately after TasJam:Voices they felt that the jam had been moderately or very useful in identifying potential work partners, however 66.6% had indicated TasJam:Health was only useful to some or a small extent as a mechanism for identifying potential work partners (see Figure 11). This may indicate that only one instance of a game jam is not sufficient to allow the identification of potential work partners given the time and activity limitations of participating in a jam.

Interestingly however, immediately after TasJam:Health, 43.3% of participants indicated that the jam had been moderately or very useful in identifying potential work partners, and another 43.3% had indicated Tasjam was only useful to some or a small extent as a mechanism for identifying potential work partners (see Figure 11). Suggesting that repeated exposure to the community through game jams may indeed allow for the identification of potential work partners.

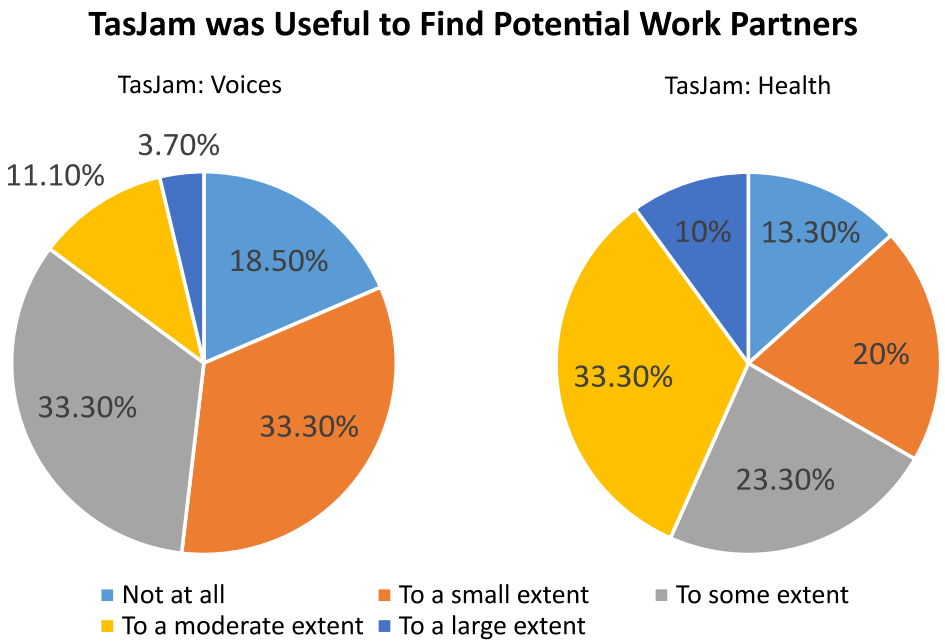

Figure 11: Usefulness of TasJam in finding work partners.

DISCUSSION

Given the lack of top-down support for Australian local games development communities, and the impact that such weak ecosystems can have on the morale of existing isolated community members, it is important to identify alternative mechanisms for building and supporting community. The results of this study indicate that game jams are a useful bottom-up mechanism for supporting the development of a local games community, as a first stage in encouraging industry development.

With regards to familiarity amongst the members of the community, the activity of participating in a game jam allowed participants to gain an awareness of others in the local community, and that when subsequent jams were undertaken, there existed an already developed familiarity amongst participants, which was further built on during the second jam.

While interaction between members of community was low prior to the participation in TasJam:Voices, it appeared that this interaction had substantially increased at the commencement of the second TasJam. Indicating that perhaps the familiarity brought about by participating in these game jams encouraged new interactions amongst members of the community after the event.

In support of the premise that games jams are a useful mechanism for building a community of local games developers, the increase in personal contacts seen after both jams, and that respondents felt closer to others as a result of the jams suggests that these jams are indeed useful in forming a much-needed community.

However, with an aim of building not just a community, but an industry, the results indicating that respondents also increased their professional networks as a result of the

game jams, and that these jams were indeed useful in identifying potential work partners suggests these as a useful tool in developing professional networks required for industry development.

FUTURE WORK

In recognition of the early stages of this research, future TasJams will continue to be monitored and additional data collected so that more in-depth analysis through inference and hypothesis testing might be undertaken, in order to provide a deeper insight into the ability of game jams a to develop and foster a local games development industry.

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