

## **Network or Die? What Social Networking Analysis can tell us about indie game development**

### **Abstract**

For indie developers, networking is framed as an unqualified good: the bigger network you have, the better off you are in terms of economic sustainability. In this chapter, we use both qualitative and quantitative data from PAX East, PAX West and GDC to critically examine whether networking -and the resources it demands- really is a universal good. We first turn to theories of Social Network Analysis (SNA), defining what we mean by networking and highlighting how SNA theories can be applied to indie development. In the second half of the chapter, we use survey data to discuss the differences in both economic stability and networking practices that are linked to one's geographic location and whether one has access to a local network or not. While quantitative analysis is somewhat novel for indie game studies, this empirical data helps us understand more about how both creative ideas and funding opportunities circulate within indie networks, as well as the limitations of events and online communities as stand-ins for long-term face-to-face communities of practice. In short, the ability to maintain a long-term career in games is linked to where a developer lives.

**Keywords:** indie game development; networking; social network analysis; creative hubs; communities of practice

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You can look at your network of people like a computer network. In a computer network, you want maximum connectivity between computers. Ideally, every computer is directly connected to every other computer. That way, if one link gets disconnected, it's only two hops to bridge that gap. You should strive to make your personal network equally connected. A connected network is a strong network. (Kazemi 2005)<sup>i</sup>

For aspiring developers, advice like that above flows through game forums, websites, and conferences.

In our own work, we duplicate these flows, pointing towards the 'boys clubs', insiders, gatekeepers, and fan communities that developers need to connect to in order to sustain game careers (Whitson *et al.* 2018). Even for "informal" developers - artists, makers, hobbyists and others who may not aspire to commercial gamemaking - these networks, particularly local ones, are acknowledged as important (Keogh 2019). For the most part, building one's network is spoken about as a somewhat vague yet unqualified good: the bigger and more robust network you have, the better off you are in terms of both creative inspiration and economic sustainability. For developers who do not live in cities with pre-existing developer communities, events such as *PAX* and the *Game Developers Conference* (GDC) become ideal sites to connect with other developers, fans, streamers, mainstream press, publishers, funders, and others in a compressed timeline.

Elsewhere, we show how these events "intermediate" indie games culture, noting the financial cost and physical exhaustion behind this affective, relational labour (Parker *et al.* 2018). In this chapter, we use both qualitative and quantitative data from developer interviews and surveys gathered through the Indie MEGABOOTH (IMB) at PAX East, PAX West and GDC in 2015-2016 to examine networking practices.<sup>ii</sup> We first outline theories of Social Network Analysis (SNA), defining what we mean by networking, highlighting how these theories can be applied to small-scale game development, and summarizing important takeaways. In the second half of the chapter, we use survey data to discuss the differences in both the economic stability and networking practices that are linked to one's geographic

location. While quantitative analysis is somewhat novel for indie game studies, this empirical data helps us better understand how both creative ideas and funding opportunities circulate within indie networks, as well as the limitations of events and online communities as stand-ins for long-term face-to-face communities of practice.

## **Part 1: SNA and Developer Networks**

### *Introduction to Social Networking Analysis: Background and context*

Being connected to others ostensibly opens doors, reinforcing the belief that “it’s not what you know, but who you know.” The focus on strategically building one’s personal and professional networks – and the slippage between the two - ties with what Andreas Wittel (2001) termed “network sociality” in response to the explosion of more ephemeral social ties due to digital communications. For Wittel, social relationships are increasingly commodified and leveraged as a business resource, particularly in new media work. What’s new here, for Wittel, is the explicit recognition of social relations as a form of capital and how these practices are not restricted to boardrooms, but also permeate entry-level work. Wittel points to a blurring of work and play that, today, is exemplified by gaming event floors and monthly meetups:

On the one hand the commodification of social relationships (doing a pitch, getting funds, finding work) is highly obvious, on the other, it is important to hide this commodification by creating a frame (music, alcohol, etc.) that makes people comfortable, that suggests a somehow ‘authentic’ interest in meeting people.

(Wittel 2001, p. 56)

With flexible and intrinsically insecure work, networks provide security: “The bigger the networks are, the better for everyone who participates in them” (Wittel 2001, p. 57). Linking this to gamemaking: in an ecosystem with readily accessible development tools and online distribution platforms, there is no shortage of games. Even well-crafted games fail in this crowded market, disappearing under the

hundreds of other launches that month. Thus, studios continually build and leverage their respective networks to signal-boost their game’s launch and reduce the inherent risk.

We argue that SNA can add more nuance to this “bigger is better” understanding of networks and community-building. SNA emerged as a recognizable field in the 1970s as a product of Harrison White’s emphasis on the structures within which social actors operate (Freeman 2004). The *structure* of a network (i.e. its location, who is in it, how they each connect, what and how they share) is equally as important (if not more so) as a network’s size in determining how useful it is for those who are a part of it (Borgatti *et al.* 2009). SNA emphasizes the use of empirical data, graphical imagery, and computational models to examine this social structure. Social Network Analysts make extensive use of network diagrams such as the one below.

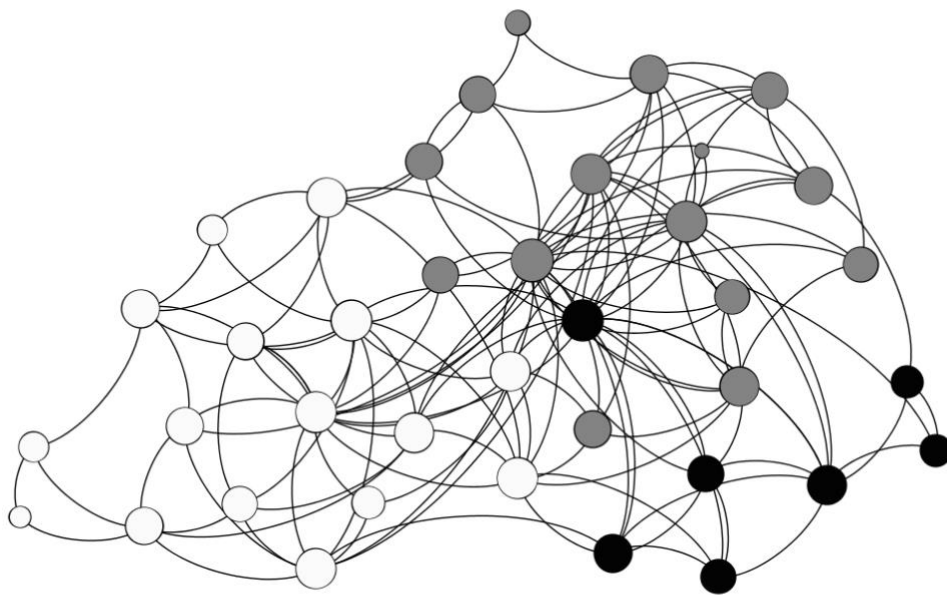


FIGURE 1.1 *Indie Interfaces SNA*

The above anonymized diagram depicts the connections that attendees at our *Indie Interfaces 2017* event drew between each other. Each node represents an individual, and the ties connecting them indicate a relationship. Highly connected people demonstrate their centrality visually: their nodes are commonly depicted as larger. In this diagram, most attendees were well-connected to each other. The different groupings depicted in greyscale in Figure 1.1. were algorithmically calculated but generally coincide with Canadian scholars (grey), international scholars (black), and those from the game industry (white). Oftentimes, the networks under examination are larger, multifaceted, and encompass several distinct groups with varying degrees of overlap.

### *Weak Ties, Brokers, and Structural Holes*

The popular conception of networks is heavily influenced by Granovetter's (1973) work on the "Strength of Weak Ties". Granovetter broke with conventional wisdom by claiming that the most valuable connections in one's personal network are not necessarily the strongest ones (such as those between family members, close friends, etc.). Instead, useful information is more likely to arrive via weak ties, such as those between acquaintances. This is because, according to Granovetter, everyone in a tight-knit community already has access to most of the same information. In contrast, information individuals glean from weak ties – such as new ideas or word of job openings - is unlikely to be common knowledge.

Burt (2004) expands on Granovetter's work, showing how weak ties can be thought of as bridges spanning "structural holes" that separate tight-knit communities. A structural hole, in Burt's view, is a collection of potential ties between nodes which, if they existed, would interconnect two separate groups in a network. Because these ties do not exist, their absence appears as a hole in the structure of the network. Gesturing towards their powerful position vis-à-vis their networks, Burt uses the term

“broker” to refer to those whose personal connections bridge structural holes. These brokers, according to Burt, enjoy privileged, early access to novel information flowing through the network.<sup>iii</sup> For Burt, brokerage is both a position and an act which can take many forms. Brokerage can involve transmitting information about groups’ strengths and difficulties or spreading knowledge of a particularly effective technique or practice between groups. Brokerage can also involve synthesizing the wider body of knowledge and practice to which brokers are exposed into something innovative. Burt puts it thus: “people who stand near the holes in a social structure are at higher risk of having good ideas” (2004, pp. 349–50).

Opportunities for brokerage are ripe in any arena of human endeavour where socially disconnected groups harbour expertise and information that might be mutually beneficial if shared. For example, artists and tools engineers may be struggling to solve a shared problem, but are unaware of each other’s progress due to the conceptual gulf separating the two groups (Whitson 2018). In such cases, both groups would benefit from the addition of an individual capable of understanding both groups’ struggles in their own terms—hence the Technical Artist’s recent rise to prominence: a role combining art and engineering proficiencies.

#### *Propinquity and Spillover Effects*

In their study of innovation and group membership in the Boston Biotech sector, Owen-Smith and Powell (2004) demonstrate that ties between network actors are not perfect conduits. Rather than simply and strictly transmitting from point A to point B, the pipes that carry information and resources are “leaky”. When fungible materials flow through a network, they slosh over the boundaries of the ties, making them available for others to utilize without needing to rely on brokers. Actors’ capacity to take advantage of a network’s “spillover effects” is conditional on belonging to the network in question and

propinquity, referring to the geographic collocation of the network's members. These spillover effects occur incidentally within collocated networks – at parties, industry meet-ups, coworking spaces, and watercoolers, or talking shop over beers with friends. In such networks, membership alone is linked to success and innovative ideas (in Owen-Smith and Powell's case, patents).

As noted by a Toronto developer, local networks are where one learns how to survive as an indie:

... before I started working alone, I got together with a bunch of people who had been running studios anywhere from, like, half a year to ten years, and just asking them questions. And I wouldn't have been able to do that – or *they wouldn't even have given me the time of day if I hadn't been involved and we hadn't known each other for three years at this point*. So, I don't know how anyone could do it without building some sort of circle... it's a circle of acquaintances or peers but not necessarily friends. But it's really important, at least to me... (male solo developer from Canada, PAX Prime 2015. emphasis added)

Belonging to and being a recognized member of a collocated network is enough to reap benefits from the information flowing within it. In contrast, if a network is geographically distant, belonging to the network provides few, if any, spillover benefits. It is far more important, in such cases, to occupy a strong, central location in the network; in such cases, one is conceivably benefitting from brokerage advantages.

One developer and IMB team member from the Midwest United States reflects upon how attending events is a stand-in for belonging to a local community, both for themselves and other developers:

The team I was thinking of is from [another Midwest state]. They're in the same situation that we are in...and there's not a big game dev scene there. [This event] is kind of their link to the outside world beyond the TIGSource forums<sup>iv</sup> or whatever their internet portal you have to go on.

(male developer and IMB team member from USA, PAX Prime 2015)

When asked why he volunteers at events, he describes the benefits that accrue to his brokerage position as:



making and maintaining connections, particularly given that it's kind of my lifeline to the outside world a little bit. Because you can only interact with people so much via, you know, Twitter and Email and that kind of thing. You know you see people at conferences and that's nice, but in general [by organizing] I'm getting to work directly with people on something of this magnitude whether they're the other people on the team, or they're the exhibitors, the volunteers. You kind of form that greater connection. If you're here in Seattle, a lot of people have that all the time.

In this case, online communities and physical events are limited stand-ins for local face-to-face communities, such as those in Seattle. By becoming a broker via his IMB organizing, he feels more able to form meaningful connections to, and help, others. Advice, leads, collaboration opportunities, feedback, and potential sources of publicity are shared in both locally-clustered and distributed communities, but in distributed communities such as PAX and TIGSource, benefits are preferentially distributed towards those seen as important or central and thus actively singled out and included in interactions. Online networks are especially prone to "network effects" wherein popularity and obscurity are both self-reinforcing, which results in the vast majority of the available resources and attention being diverted away from the less-known towards the better-known (Uzzi 1996, Browne 2015).

### *Bigger Isn't Always Better*

Returning to our opening quote, Darius Kazemi explicitly references Granovetter's argument about the strength of weak ties and encourages developers to take it to heart.

When I try to illustrate weak ties, I often use the example where there are ten people you know, but not very well at all. But you know that one of them is a guy who does research on serious games. And you know that another one is thinking of getting into that sector. You introduce them, and all of a sudden you have their gratitude. And you did nothing but send them both a brief email. (Kazemi 2006)

Not only, he argues, will an abundance of weak ties provide you with better chances of receiving useful information or resources, they also allow you to act as a broker. However, there is a significant workload associated with becoming a broker and maintaining one's position (Whitson *et al.* 2018).

Podolny (2001) argues that the logic of brokerage encourages the single-minded pursuit of network expansion. Such advice, he concludes, ignores the “negative consequences that derive from this expansion” (2001, p. 35). *Who* you are connected to impacts your reputation. For example, if a broker’s network is populated by gambling/casino management, their reputation within indie scenes may be suspect. Having too many disparate and superficial ties can also be seen in a negative light – in terms of being ‘all talk’ and attempting to be too many things. In both cases, the consequences are perceptual: they are predicated on others’ perceptions of the actor’s position in the network. In this way, Podolny claims, ties between actors act both as pipelines (conduits of resources and information) *and* as prisms (lenses which colour the others’ views of the actors involved).

Stovel and Shaw (2012) argue that expanding one’s network can cause others to regard an actor with suspicion and hostility. Actors who have managed to secure a brokerage position in a network can benefit from it, but the very act of doing so is likely to undermine this position. Brokers who use their brokerage position for personal gains are viewed as corrupt, and if brokers “fail to effectively manage these gains, they risk undermining the very relationships that keep them at the center of potential transactions and interactions” (Stovel and Shaw 2012, p. 154). When brokers are seen as extracting more than they contribute to their network, this damages their standing. This is less of a problem for individuals who work in a larger studio, and/or are otherwise financially stable - they can better afford to be selfless with the benefits of their network position, and have less to lose if their position in a network is negatively impacted. As we detail elsewhere, cultural intermediaries such as event and coworking space organizers are paradigm brokers, and continually walk this fine line as they navigate their own precarious positions (Perks *et al.* forthcoming). For example, a co-working space organizer that asks their network to promote her game, contribute free services, and/or accepts ‘too many’

donations from large corporations etc. could be seen as exploiting their position, undermining relationships built upon mutual goodwill and support.

Additionally, networking and becoming a broker to many diverse groups - which, for the purposes of this chapter, we refer to as becoming a “super-broker” - can result in spreading oneself too thinly. Clement, Shipilov and Galunic’s (2018) study of French game production companies show how super-brokers have both positive and negative impacts upon those in their networks. They gather information from different communities, but this also leads to a multitude of collaboration opportunities: the super-broker becomes so invested in other projects and communities, they have little time to dedicate to their own. A studio with a super-broker member risks said broker diverting their labour and resources away from the team’s efforts. This leads to a dilemma for small teams who must network to be successful. They require brokers, but cannot support or sustain a dedicated member of their team to do so. Thus, all members wear multiple hats and take on double shifts (Whitson *et al.* 2018).

The benefits and drawbacks of being connected to a super-broker depend on ones’ role (Clement *et al.* 2018). Creativity-focused roles, such as designers and writers, are likely to benefit from the information spillover that comes from a relationship with a super-broker. Efficiency-focused roles, such as producers and programmers, are likely to suffer from a super-broker’s ability to rapidly and selectively extend or withhold information and resources without being affected by the consequential suffering of their contacts. In other words, if a studio is attempting to finish a game and/or is undergoing a crisis that requires a team’s full attention, having a super-broker on the team can be a detriment, as their time and energy are commonly diverted elsewhere. For developers contracting on several side-projects this becomes a common occurrence.

Finally, SNA lends some general insight into exhibiting games at events such as PAX and GDC. While the end-stage of production is the ideal time to promote a game, it is also the most resource-intensive stage and developers have few remaining resources (both time and financial) to exhibit on show floors. Events may also generate new creative directions and dead ends that divert attention. Pragmatically, there is no easy formula in terms of balancing the need to network with shipping a game, but it does help explain why indies face crunch when, unlike AAA studios, they have more autonomy in setting their release dates: everything needs to be done in the final months of production.

To summarize this section, SNA theory tells us that networking is important and takes different forms in terms of helping developers access material resources and support, as well as generating and refining game ideas. There is a difference between how ideas and resources flow between local networks and distributed networks that are online or temporally-restricted (such as events): benefits flow more freely to all members of local networks due to “leaky pipes”. In distributed networks, benefits generally flow to brokers who connect different communities and those with already established reputations. While “bigger is commonly better”, the perceived pressure to connect with many different communities to help market one’s game comes with considerable risks in terms of the work needed to establish and maintain a positive reputation as a broker, and the associated dangers of being perceived as selfish or having a tainted network reputation, and spreading oneself too thin across different work roles and communities.

In the second half of this chapter, we take a closer look at local versus distributed networks. We begin with a discussion of hubs, pointing to key literature on local gamemaking communities. We then test networking theories empirically, using quantitative and qualitative analysis to demonstrate how geographical location can impact one’s trajectory as a developer. We then highlight the strengths and

weaknesses of ephemeral events that attempt to distil the benefits of watercooler conversations and other leaky pipes into the span of a few days.

## **Part 2: Using SNA to Understand Local and Event-based Networks**

We start this section with a testable hypothesis generated from SNA theories: developers that have access to local face-to-face development communities exhibit key differences from developers that lack access. Before moving to a discussion of our data, it is important to first situate development hubs as local networks.

### *Defining “Hub”*

Florida’s influential (2002) work on the creative class, Leadbeater and Oakley’s *The Independents* (1999), and McRobbie’s more recent (2016) critique all foreground the impact of local communities on cultural production writ large. In game studies, *The Good Hubbing Guide* (Crogan 2015) emphasizes the importance of “creative territories”, detailing strategies for setting up and maintaining local communities of practice that are economically stable in the long-run.

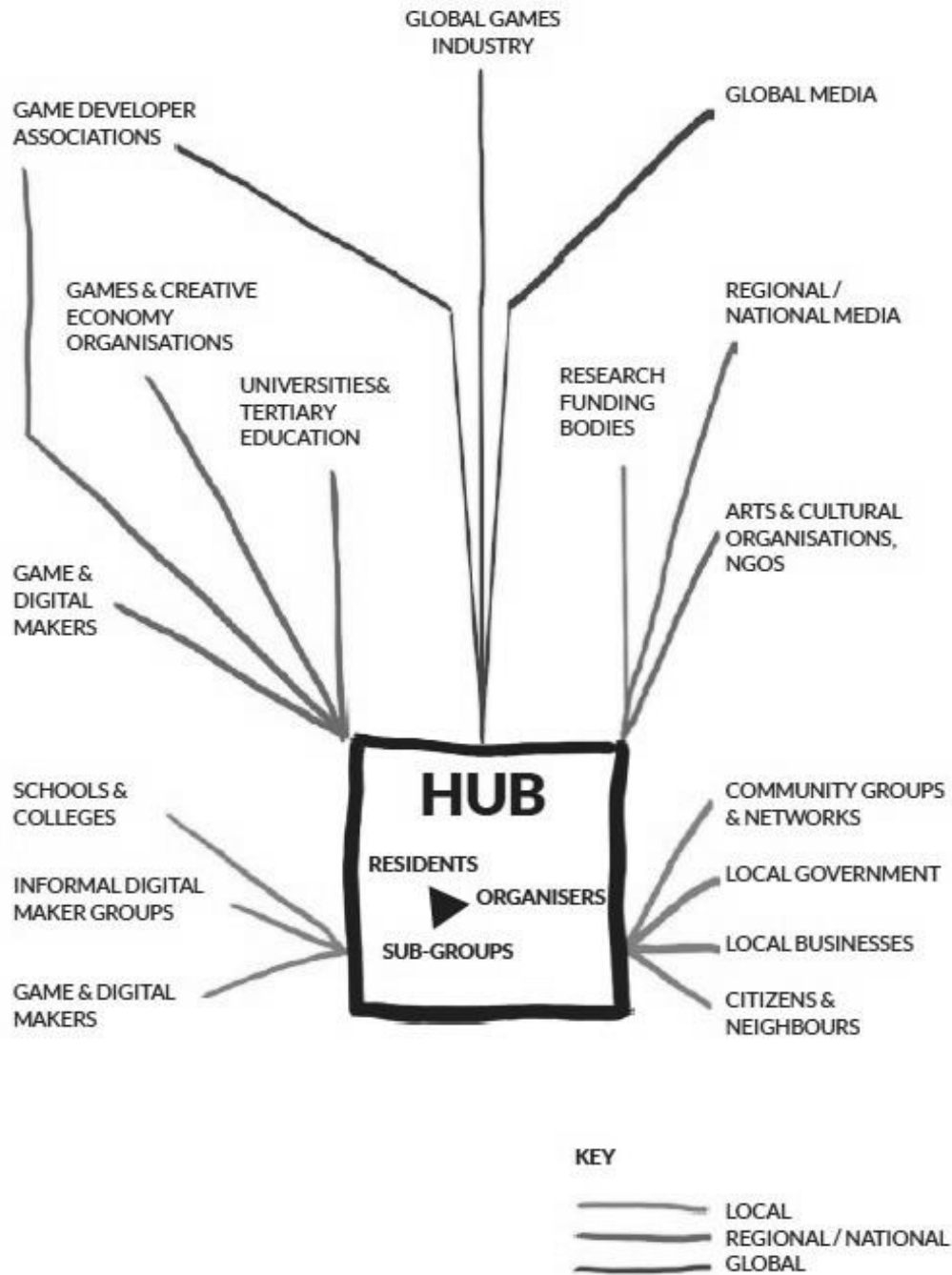


FIGURE 1.2 Hub Diagram

Image credit: Patrick Crogran (2015)

For Crogan, a hub is a specific venue/location/organization, usually a co-working space or similar. These physical spaces facilitate the exchange of expertise, allow for spontaneous encounters, and help sustain what is colloquially referred to as “critical mass”. Well-established hubs also maintain ties to nearby education institutions, community groups, and representatives from municipal and regional governments, which provide resources and promote interchange. These dynamics are also captured by Guevara-Villalobos’ (2011) work on communities of practice.

In contrast, Canadian game studies researchers use “hub” in a different way, discussing whole cities as national hubs (Gouglas *et al.* 2010, Parker and Jenson 2017). For Parker and Jensen (2017), the benefits of hubs and the local network effects they generate can be visualized as operating on a spectrum: cities like Toronto, Montreal, and Vancouver exhibit a high concentration of developers and indie activity, whereas locations such as Ottawa or Calgary are more marginal in that they struggle to maintain critical mass, even though they have local community organizations and spaces that could, by Crogan’s definition, be defined as hubs. At the far end of the spectrum are geographically isolated developers with access to online communities only. These online networks provide “some access to community, knowledge, resources, and transnational markets” however they are a far cry from local scenes which “stabilize and formalize the diverse social/economic networks of actors and activities that encompass indie cultural production” (2017, p. 872). This difference is articulated by one interviewee who describes the local Boston community (the site of PAX East 2015):

[There’s] a group called the Indie Game Collective and they’re just a bunch of indie developers that kind of work together. They work in the same [spot] and they throw ideas off each other. It was slightly curated for different companies that brought different things to the table and they just share a lot of ideas and can help out one another. I think it’s – you can go alone but it’s better to have like kind of that support system around you.

(non-binary developer from the United States, PAX Prime 2015)

In short, developers in hub cities can find everything they need locally, whereas isolated developers must 'go it alone' and work much harder to find and secure resources and connections.

For the purposes of this chapter, we used developers' city/town to operationalize whether they were from a hub or not. We formulated a number of criteria that, to us, characterize sites of local leaky pipe exchanges. These are sites where serendipitous meetings and conversations generate flows of contacts, resources, and ideas. These criteria include:

- The existence of production-oriented expertise and resources (for example, studio space, skills/knowledge-base, investors/funding contacts). In this sense, hubs are generally sites with established studios and/or a number of released games;
- The existence of an accessible community of practice that promotes the frequent free exchange of ideas (for example, regular game development meetups, and/or support organizations such as co-working spaces, which promote flows beyond individual studio walls);
- Internal recognition as a developer hub in terms of a collective identity. A sense that 'we're-all-in-this-together' defines the open flow of resources and support within indie communities of practice;
- The existence of public-facing events, such as showcases, that reflect an ability to interface with other institutional structures and scenes; and, in relation to this,
- External recognition as a developer hub, particularly by cultural intermediaries and state actors.

This is connected to economic and legal support which affords access to greater resources.

We then forwarded our criteria to game academics and industry experts with a list of locations and asked them to pinpoint hub cities. In line with Parker and Jensen (2017), there were a few marginal locations that met only some of the criteria. We sorted and coded the data according to whether developers came from a clearly defined hub or elsewhere. It is worth noting that the above criteria also characterize the networking and exchange of cultural, social, and economic capital that takes place at



events such as GDC and PAX. The difference is a temporal one: developers in hub cities have access to these leaky pipes at all times, whereas at events developers only have access to time-limited resources that act more like firehoses.

### *Data and Analysis*

Our data spans three different events: PAX Prime 2015 (now known as PAX West), PAX East 2016, and the Game Developers' Conference (GDC) 2016. Along with gathering 123 surveys, we conducted semi-structured interviews and participant observation. The surveys collected demographic and economic information from game studios, including where studios were located, their size, team composition, and launch histories, as well as how they supported their team and funded their activities. Data from the surveys were shared directly with developer communities (Whitson 2015, Parker 2015). The interviews additionally asked interviewees about their personal goals, their support systems, and the perceived health of independent production scenes. The data was then cleaned, coded, and collated.<sup>v</sup> We were interested in two variables: whether developers came from a hub city (79 respondents) or not (28 respondents)<sup>vi</sup> and whether they considered networking opportunities as a motivation for attending said event. To examine the relationship between these two binary variables, we used Chi-Square tests of independence.

We found a number of statistically significant results that confirm some of the theories of networking detailed above. Not surprisingly, 86.2% of respondents from non-hub cities viewed networking as an important motivation for exhibiting, whereas only 61.5% of respondents from hub cities said the same.<sup>vii</sup> Developers from hub cities were also more likely to have launched games before. Only 6 non-hub developers had launched games before compared to 39 hub developers. We also examined funding sources. Developers that expressly went to events to network were more likely to be interested in

connecting with publishers/investors, and were more likely to not have had previous contact with publishers/investors. Not surprisingly, this could be interpreted as meaning that developers who do not have regular access to publishers/investors in their home locations go to events expressly to connect with them.

We also wanted to know if developers had differential access to funding depending upon where they came from, including locational differences in whether they relied on past savings, partners/family (i.e. were 'kept devs'), day jobs, and government funding. Statistically speaking, there was no correlation between whether one was a full-time indie and whether they were from a hub or not. There was very little difference in the *number* of funding sources: developers from hubs, on average, reported 2.77 funding sources, whereas non-hub developers reported 2.71, meaning that regardless of where one was from, indie development is funded piecemeal, through multiple sources. But there was a difference in the *forms* of funding.

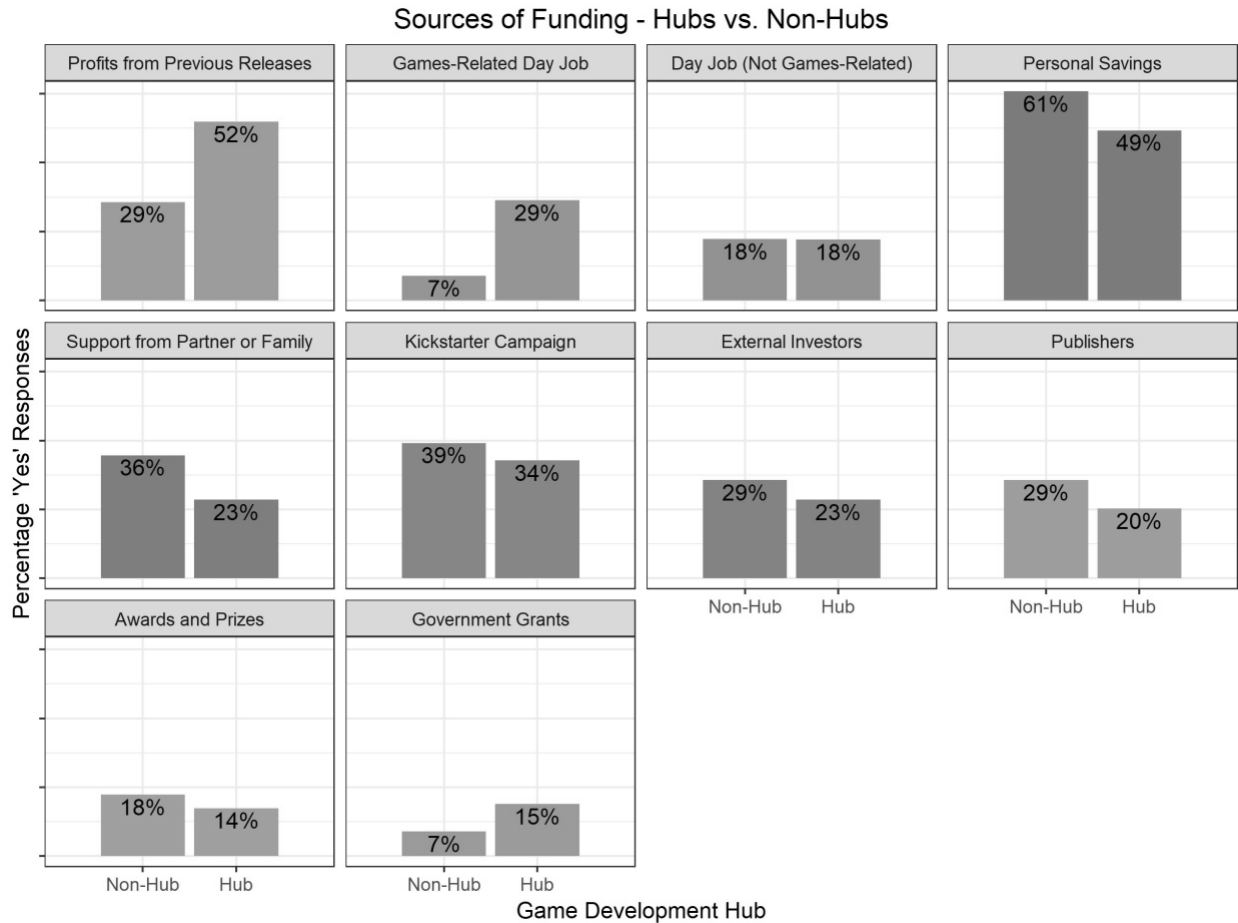


FIGURE 1.3 *Funding Graph*

As demonstrated in the graphs above, respondents from geographical hubs were more likely to have game-related day jobs, and to use this to fund their indie work.<sup>viii</sup> This is a sensible (if somewhat obvious) result, as those from hubs are likely to have more opportunities to work with game development studios and thus gain experience. Those interested in working in the game industry also likely gravitate towards such hubs. Secondly, developers from hubs were more likely to fund their games using profits from previous releases. This result corroborates that of the relationship between the ‘Hub City’ and ‘First Launch’ variables: if developers have not launched a game yet, they will not have any profits to put towards funding game development; game developers from hubs are more likely to have released a game before *and* to be funding their current game with profits from a previous release. In short, what this means is that developers from hub cities, as a whole, were more experienced, more able to focus on

gamemaking (without needing to rely on non-game related employment), and more targeted in terms of their event activities.

Our qualitative data supports these findings. Building what are seen as useful connections to others is simply easier in hubs, with many serendipitous opportunities, such as those described by one participant from Seattle:

[I]f you are making your own game or you want to break into the games industry, all you have to do is go to a local party. We have like four or five indie game parties a month at this point. So, you're going to show up there and there will be recruiters from Microsoft or ArenaNet or from whoever, you know. ID and Xbox might show up and take an interest in your game, other developers might want to partner with you. If you need people on your team you can always find people at these parties, so... yeah. The success of your game definitely depends on the size and success of your community as well.

(male, developer and IMB team member from USA, PAX Prime 2015)

However, qualitative data adds more nuance to this discussion, as Jorge Blacio, a developer from South American demonstrated. His country lacked a hub, and he and his team were acutely aware of the lack of community, support organizations, funding, and both informal and formal education opportunities.

However, he portrayed isolation as having both good and bad elements:

That's one of the bad things. You do not get [work] experience in your country. And you have to – if you're really really starting out and you don't have any money to do it, how would you be able to get these experiences? But the good thing is that, since you're isolated from the rest of the scene, you're not like tainted through the mainstream stuff that's going on. And you can come up with really unique stuff. Like when we came out with our game people see and say, "How the hell did you come up with a flying door?"

(Jorge Blacio, Game Producer at Freaky Creations, PAX Prime 2015)

In this sense, by not belonging to a hub, Blacio's game stood out within a crowded ecosystem on a creative level because it was not shaped by common tastes and influences. While a deeper examination of creativity and how it links to where a developer is from is beyond the scope of this chapter, we think dissenting views such as this are important to include, as they add context that is missing with quantitative data alone.

We would like to also note a significant finding which warrants further investigation: we found a negative correlation between the desire to 'network' at events and the desire to 'engage with fans'. In contrast, there was no relationship between the desire to 'network' and the desire to 'playtest'. Potentially, this could support Wittel's theory of network sociality, in terms of seeing networking as something instrumentally undertaken to access high(er) status connections, resources, and/or services, such as player feedback on how to improve one's game. However, there may be alternate explanations. For example, those interested in networking are generally less connected and experienced as developers, and thus may not feel they have an established fan base with which to engage. This finding is worth exploring further, as we often take for granted that a desire for audience engagement is a fundamental principle of being independent in the first place.

### **Concluding Thoughts**

Game developer networks provide resources, mutual support, and privileged access to other individuals and organizations such as publishers, press, and cultural intermediaries. These communities allow developers access to uncommon information, such as feedback on ideas and prototypes and other sources of inspiration, thus spurring innovation. Creativity is not the purview of the individual - it lives within networks, particularly the boundaries separating groups from one another (Uzzi and Spiro 2005, de Vaan, Mathijs *et al.* 2015).

This chapter used SNA theory to deepen the oftentimes vague discussions about networking in game development. It questions whether time and resources networking are always beneficially spent, looking at how benefits are differentially distributed according to one's location, role, and stage of

development. As we have demonstrated, there is a difference between local communities of practice - hubs - which have continued access to leaky resource pipelines, and other, more isolated developers.

Quantitative analysis supports the theory that there are distinct benefits of belonging to geographic hubs. These benefits can only be partly replicated by temporally limited networks such as events.

Developers from hubs are generally more experienced in terms of previous launches and more able to focus on gamemaking without needing to rely on non-game related employment. Qualitatively, they are able to access advice and assistance that would not otherwise be available. Temporary developer communities form around events such as GDC and PAX. These events attempt to act as 'watercoolers' for developers, however, these networks are more ephemeral and take much more effort to build and maintain.

While quantitative analysis can help us understand more about how and why developers network, as well as provide empirical evidence as to the benefits of being able to access local game development hubs, it is worth noting the limitations of this analysis, both in terms of sample size and because we coded for hubs/non-hub ourselves rather than asking developers to self-identify. Our focus on funding and economic stability is both a function of data that is amenable to statistical analysis, and our own interest in understanding and generating research that could assist in reducing financial precarity in cultural work. However, as Keogh (2019) points out, it is a mistake to assume that all gamemakers aspire to commercialization and careers.

While it seems common-sense to claim that geographical hubs are important to cultural production, we think our mixed method analysis *empirically* - rather than anecdotally - demonstrates that there are distinct differences between those that can easily access resources and those that cannot. This leads to

two key takeaways. Firstly, whether one can have a long-term career making games, at an indie scale, is strongly shaped by where one lives. Advantages accrue to those in hubs. In a crowded and competitive ecosystem, developers in hubs have stronger and more easily accessed support networks and thus more assistance 'surviving' than those 'going it alone', particularly in terms of access to funding and skills-development. Not all developers outside of hubs can afford to travel and showcase their games thus building important connections to others, leading to further structural differences in terms of who is able to sustain a career in games.

This points to towards our second takeaway. While the existence of hubs makes cultural production more sustainable in these geographical areas, hubs themselves are precarious and typically rely on state funding and support (McRobbie 2016). Accordingly, state-level funding initiatives are an important area of study when examining how to foster stable, long-term creative communities. If the physical manifestations of hubs such as meet-ups, co-working spaces, and local events disappear, or key studios relocate or withdraw, then these communities of practice have a harder time cohering and sustaining themselves. In these cases, the collapse of a studio or workspace could lead to a cascading effect throughout the local community. Accordingly, as a unit of analysis, we would like to further emphasize the need to study hubs rather than focus on individual games or studios.

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<sup>i</sup> Darius Kazemi is a developer, artist and co-founder of *Feel Train*, a creative technology cooperative. This quote is from his article, 'Effective Networking in the Games Industry'.

<sup>ii</sup> Interview and survey participants were recruited through the Indie MEGABOOTH (IMB), an organization that collectively purchases floor space at large gaming events and conventions, allowing small developers to pool resources and occupy the same space as large multinationals. Quotes and context were approved by interviewees in the writing stage of this chapter. Final quotes are anonymous, unless otherwise requested by interviewees.

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<sup>iii</sup> In Figure 1.1, nodes are all generally well-connected through multiple routes, meaning there are no distinct communities, and thus no brokers are needed to bridge the structural holes between separate communities.

<sup>iv</sup> TIGSource is a public online forum for independent game developers to discuss, create, collaborate, and share.

<sup>v</sup> The process for re-coding one question bears mentioning: in the GDC and PAX 2016 surveys, respondents were asked to rank their reasons for applying to the IMB exhibit using a 5-point Likert Scale. The PAX 2015 data, however, posed the question as a true/false proposition which asked respondents to check all the appropriate boxes. As such, the decision was made to recode the Likert responses from the 2016 surveys as binary true-false responses, where anything listed as a 1 (Most Important), 2, and 3 was considered 'important,' whereas anything listed as a 4 or 5 (Least Important), was considered 'not important.'

<sup>vi</sup> 16 survey respondents only identified their country/state. They were removed from this analysis.

<sup>vii</sup> Because of the way the Likert scale for the 'Networking' variable was interpreted and coded, with a random distribution of responses we would expect to see 66.7% of respondents indicate that networking was an important motivation.

<sup>viii</sup> For the funding graph, the only differences that are statistically significant are in the Games-Related Day Job ( $p < 0.05$ ) and Profits from Previous Releases ( $p < 0.1$ ). The graphs showing that non-hub respondents were more likely to rely on personal savings and their partner/family were not statistically significant, but indicate an interesting avenue for investigation.