

Online-Offline Social Ties in Massive Multiplayer Online Games

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Research Overview



Boundaries of online-based social networks and its possible extensions and intersections with offline social networks



Massive Multiplayer Online Games.



Gap in the literature

The online aspect of social interaction, omitting the offline context.



The primary objective is to look at both offline and online social contexts of gamers.

Motivation



ONLINE GAMING INDUSTRY
1,500+ ACTIVE VIRTUAL
WORLDS (2017)
MILLIONS ACTIVE USERS
(2019).



PLAYERS GO BEYOND THE
GAME-SCAPE WHEN THEY
PARTAKE IN ACTIVITIES
EXTRANEIOUS TO THE GAME
ITSELF, BOTH ONLINE AND
OFFLINE.



ONLINE GAMING
REQUIRES THAT PLAYERS
SEEK OUT HELP, GET
ORGANIZED, AND WORK
TOGETHER



INTERACTIONS OCCUR IN
REAL-TIME, FAST-PACED
SCENARIOS, QUITE THE
OPPOSITE OF OTHER
ONLINE INTERACTIONS.



NO IN-DEPTH STUDIES
ABOUT ONLINE/OFFLINE
SOCIAL NETWORKS AND
THE GAMERS' OFFLINE-
ONLINE SELVES.



AS AN INTROVERT AND
GAMER MYSELF, I HAVE
MADE MEANINGFUL
RELATIONSHIPS THROUGH
ONLINE GAMING.

Relevance Digital Culture



ICTs intensify our abilities to transcend time & space
Interaction is instant and constant
Capacity to participate with others around the globe.



Society is embedded in digital culture (Gere 2008) and that its citizens can be considered “digital natives.”



The digital-scape positions us in an eternal present, ruled by the immediate and ephemeral. We are living in an eternal present as we experience the anxiety of being technologically linked to a fast-paced world of information (Rushkoff, 2014).

Relevance Online Gaming



[G]aming forms an important part of (at least some) peoples' everyday lives and identities (Crawford et al. 2011).



Social dynamics in online gaming are remarkably robust and similar to real-world communities (Jiang, Zhou and Tan 2009, Johnson, Zhao, Xu et al. 2009, Szell and Thurner 2010)



The way groups form in-games is similar to way we assemble project teams in real life (Zhu, Huang and Contractor 2013).



Gamers are loyal to their social networks (Ducheneaut, Yee, Nickell et al. 2007, MacCallum-Stewart 2011, Taylor 2006).



Places where players undertake social activities similar or identical to those in a non-virtual space but do so with an awareness that they are in a realm that includes ludic codes of practice (MacCallum-Stewart, 2011).

Behind The Script: Positionality Framework

Structural symbolic interactionist perspective based on Sheldon Stryker's work on Identity Theory.

- Based on George Herbert Mead (1934) and Herbert Blumer (1969)
 - Co-creation of meaning which shapes the world
 - Focused on social structures
- Society defines the self and the self, in turn, shapes social interaction (Stryker, 2008).
- Social actors are born into and embedded in society
 - “cannot survive outside of pre-existing organized social relationships” (Stets & Serpe, 2014).
- The multifaceted self composed of several hierarchically organized identities. These respond to a salience structure.

Tie-ins with other social theorists:

- Erving Goffman's Presentation of the Self, Frames, Keys
- Anthony Giddens' Reflexive Project of the Self
- Kenneth Gergen's Relational and Saturated Self

Previous Work

Focus on a single Online Social Network



Handful of studies discuss meaningfulness of online friendships

- Internet users in Hong Kong – E-mail vs offline
- In-game experience and performance
- Player enjoyment

Three-Article Dissertation

Steam

Gaming OSN – Network Structure & Biased Nets

- To what extent do gamers, who play online multiplayer games through Steam, share similar interests, as owned games, time played, game types, and group/community memberships with their friends list?

Questionnaire

242 Online Gamers – SNA of Top 3 Online and Top 3 Offline Ties

- What is the difference between online gamers' top three online gaming social ties and their top three offline friendship ties? How do both ego networks (online-offline) relate to social relationship management techniques and identity management or self-presentation techniques?

Interviews

Follow-up with 14 Participants – Thematic Analysis Self-Presentation & Friendships

- What is the biography behind each tie in both their online and offline networks? How does the participant perceive these relationships and how does he/she manage his/her self-presentation when interacting with each network (offline-online)?

1. Steam



A network sample of 6 million users:
11,537 profiles
26,798 friendships



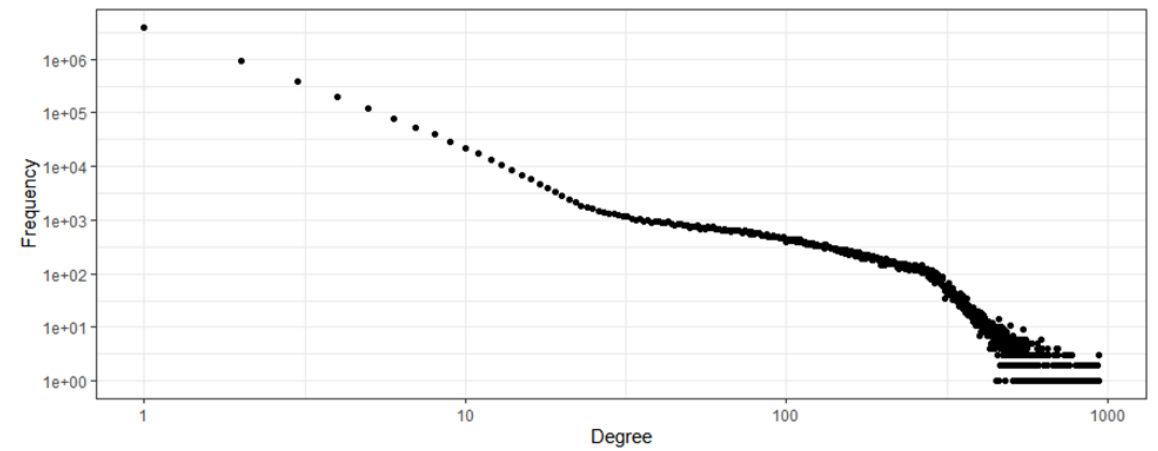
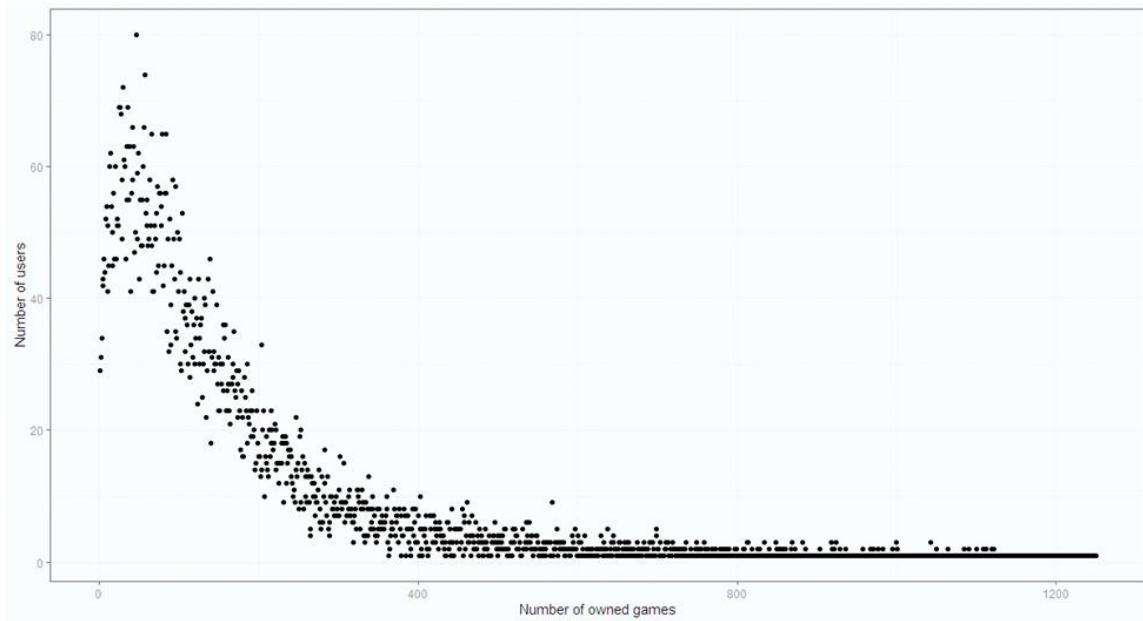
Social network analysis were conducted to confirm that the subgraph was structurally similar.



From the available user characteristics biased net models were fitted:
Are gamers more attracted to similar others?

	N		
Profiles	11,537		
Total Ties	26,798		
Countries	195		
Primary Groups	8,294		
	Mean (SD)	Median	Range
Friends	4.65 (8.9)	2	1-258
Games Owned	277.8 (812.31)	116	1-18,653
Recent games (2-weeks)	5.4 (7.66)	4	1-302
MP Games	97.3 (142.9)	62	0-2508
Prop. MP Games	0.52 (0.14)	0.53	0-1.00
Total Playtime (minutes)	1,736 (5,585)	1,037	0.02-332,671.91
2wks Playtime (minutes)	32.9 (189)	12.73	0.02-7,320.75
	Valid %		
Shared Country	37.2%		
Shared Primary Grp	3.5%		
	Mean (SD)	Median	Range
Friendship in Years	1.60 (1.42)	1.2	0-10.2
Total Shared Games by Dyad	211.91 (697.78)	34	0-15,387
Shared Online Games	55.1 (121.7)	20	0-2291
Shared Prop. Online Games	0.51 (0.19)	0.55	0-0.97
Diff Days Acct. Creation	1,015.23 (915.30)	749	0-5,337

Steam



Steam - Assumptions

Declared friendships are mutual

- No way of knowing who initially sent a friendship request.
- No way to measure actual interaction between two friends.

Similarity and Dissimilarity

- There are no sociodemographic data aside from country of origin.
- Analyses are based on continuous variables:
 - Game Count; Playtime; MP Game Count; Account Age; Proportion of MP Game; and Continental Region

Steam – Origin to Target Distribution & Differential Models

Game Count						Playtime Forever						
	1st	2nd	3rd	4th	5th		1st	2nd	3rd	4th	5th	
1st	2380	1849	1633	1203	997	1st	2474	1850	1260	1361	1318	
2nd	1849	1670	1709	1473	1372	2nd	1850	1688	1306	1324	1260	
3rd	1633	1709	1954	1906	2178	3rd	1260	1306	1416	1507	1472	
4th	1203	1473	1906	2188	3048	4th	1361	1324	1507	1850	2117	
5th	997	1372	2178	3048	10668	5th	1318	1260	1472	2117	3808	
MP Game Count						Account Age						
	1st	2nd	3rd	4th	5th		1st	2nd	3rd	4th	5th	
1st	2380	1849	1633	1203	997	1st	2506	1983	1627	1238	1236	
2nd	1849	1670	1709	1473	1372	2nd	1983	2450	2114	1746	1748	
3rd	1633	1709	1954	1906	2178	3rd	1627	2114	2178	2213	2023	
4th	1203	1473	1906	2188	3048	4th	1238	1746	2213	2798	2938	
5th	997	1372	2178	3048	10668	5th	1236	1748	2023	2938	5932	
MP Game Prop						Continent						
	1st	2nd	3rd	4th	5th		AF	AS	EU	NA	OC	SA
1st	14872	2398	1492	1139	978	AF	16	38	151	305	14	28
2nd	2398	1920	1733	1539	1300	AS	38	954	828	1274	78	62
3rd	1492	1733	2004	1669	1518	EU	151	828	4886	3346	393	273
4th	1139	1539	1669	1740	1700	NA	305	1274	3346	14558	399	399
5th	978	1300	1518	1700	2128	OC	14	78	393	399	82	29
						SA	28	62	273	399	29	558

Game Count					Playtime Forever							
	1st	2nd	3rd	4th		1st	2nd	3rd	4th	5th		
1st	2240	1882	1499	846	1st	852	739	516	463	460		
2nd	1882	1820	1782	1080	2nd	739	828	718	618	566		
3rd	1499	1782	1820	1300	3rd	516	718	874	800	730		
4th	846	1080	1300	998	4th	463	618	800	914	1106		
					5th	460	566	730	1106	2140		
MP Game Count					Account Age							
	1st	2nd	3rd	4th	5th		1st	2nd	3rd	4th	5th	
1st	2374	1833	1557	867	37	1st	1964	1376	1076	648	435	
2nd	1833	1656	1633	1026	47	2nd	1376	1640	1342	878	524	
3rd	1557	1633	1804	1283	52	3rd	1076	1342	1272	1127	577	
4th	867	1026	1283	1052	46	4th	648	878	1127	1096	572	
5th	37	47	52	46	8	5th	435	524	577	572	574	
MP Game Prop					Continent							
	1st	2nd	3rd	4th	5th		AF	AS	EU	NA	OC	SA
1st	348	379	430	431	444	AF	8	12	77	201	3	12
2nd	379	816	964	1021	969	AS	12	214	179	587	15	13
3rd	430	964	1354	1302	1284	EU	77	179	1048	1072	58	74
4th	431	1021	1302	1506	1564	NA	201	587	1072	8458	182	147
5th	444	969	1284	1564	2056	OC	3	15	58	182	28	5
						SA	12	13	74	147	5	350

Inbreeding Distance Models - Collectors

Game Count, MP Game Count, and Playtime:

- Higher intra-group preference for poles
 - Preferential probability falls at each step, still choosing from their own group had the highest likelihood
- When all distance biases failed to occur, groups were more likely to choose the top quintile
- Some examples of choosing similar others prevailed, but overall gamers were more likely to choose the top quintile at each distance

Game ownership and playtime seem to follow a pecking order, in which most groups present an inclination towards choosing a target that is ranked above themselves, except for the first quintile

Inbreeding Distance Models



Graph without Collectors (≤ 232 Game Count)



Most considerable differences are within the game count variables



Differential biased estimates were smaller

More likely to mingle with others



Game count variables - more likely to choose a group lower than them



Playtime the dynamic is inverted

They had a preference towards others of higher-ranked groups at all three distances

Steam – Discussion

Network with Collectors: higher preference towards similar others than the subnet, when it comes to selecting their own group

- The non-collector did show ties at closer distances

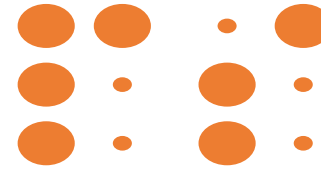
Most groups showed preference towards similar others when considering the differential inbreeding models

Homophily effects were identified at different characteristics and distances

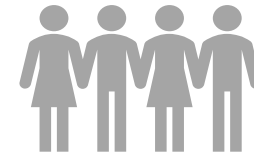
- They do not tell the whole story when it comes to target propensities

Limited by the available data

2. Questionnaire



**242 participants from
the US – 18 or older –
1,339 alters**



**Top three online and top
three offline friendship
ties**

Excluding family members

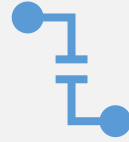
Name interpreter items

Questionnaire – Descriptive Stats

Variables & Categories	Mean or %	(SD)	Variables & Categories	Mean or %
Age (in year)	32.64	-12.67	Employment Status	
Gender			Full-time	48.30%
Male	64.00%		Part-time	14.00%
Female	34.70%		Unemployed - looking for work	6.60%
Other	1.20%		Unemployed – not looking for work	0.40%
Race/Ethnicity			Student	18.20%
White non-Hispanic	70.70%		Retired	3.70%
Black non-Hispanic	9.10%		Homemaker	5.00%
Latino/Hispanic	7.40%		Self-employed	2.90%
Asian	9.50%		Unable to work	0.80%
Middle Eastern	1.20%		Marital Status	
Other	2.10%		Single, never married	60.30%
Education			Married or domestic partnership	34.30%
Less than a high school diploma	2.10%		Widowed	0.40%
High school degree or equivalent	17.40%		Divorced	4.10%
Some college, no degree	29.30%		Separated	0.80%
Associate degree	15.30%		Household Income	
Bachelor's degree	26.90%		Less than \$20k	12.80%
Master's degree	8.30%		\$20k to \$34,999	22.30%
Professional degree	0.40%		\$35k to \$49,999	14.90%
Doctorate	0.40%		\$50k to \$74,999	19.80%
			\$75k to \$99,999	9.10%
			Over \$100k	9.90%
			Prefer not to say	11.20%

Variables & Categories	Percent
Play MMOs per Week	
Every day	39.80%
Two to six times	41.90%
Once	9.50%
Less than once	8.70%
Time playing MMOs	
Less than a year	4.60%
One to three years	19.90%
Four to six years	26.10%
Seven to 10 years	20.70%
11 years or more	28.60%

Questionnaire – Method/Analysis



Relationship between
type of tie and measures
for relationship
meaningfulness

Ranked ties –
collapsed into
top three or not



Controlling for time
known (4 years or more)

Statistical difference
disappears
Missing data on offline
contacts



Logistic regressions to
confirm results

Type of tie and
importance

Questionnaire – Method/Analysis



Knowledge of alters – sharing
information



Friendship level
variable

Interaction time,
sharing information,
support, advice, and
type of interaction

Questionnaire -
Comparison
between online
and offline subsets

Model 3
Online ties

Variable	B	S.E.		Exp(B)
Constant	-3.703	0.445	***	0.025
Interaction	0.285	0.085	**	1.33
Voice chat	0.465	0.168	*	1.592
Knowledge	0.257	0.067	***	1.294
Advice/support	0.477	0.266		1.612
Personal matters	1.221	0.268	***	3.389
Life events	0.181	0.263		1.198

Offline Ties

Constant	-3.666	0.47	***	0.026
Interaction	0.177	0.06	**	1.194
Knowledge	0.404	0.068	***	1.498
Advice/support	0.541	0.245	*	1.718
Personal matters	0.76	0.251	**	2.138
Life events	0.704	0.242	**	2.022

Questionnaire - Discussion

In general, offline ties were more meaningful than their counterparts

Interaction time seems to have a stronger effect on online ties

- Voice chat
- Shared interests
- Common goal/objective – Teamwork
- Proximity, similarity, and social attraction
- Bonding Social Capital

Most were willing to meet face-to-face

Online quality time tied to gaming environment

- Transcending the gamescape

Questionnaire - Discussion

Generic Social Media vs. Online Gaming Communities

- Paced communication vs. real-time

Technological advances

- Webcams, Microphones, social interaction platforms tied to gaming
- Continuous interactions with more social, tonal, and visual cues

The Digital Age and Generational Culture

- Born at or after the public advent of the Internet
- Rapid propagation of interconnected digital devices

3. Interviews



14 Participants



The research design was based on Elisa Bellotti's (2015) qualitative approach to social networks.



Used previously collected network data to elicit participants to construct narratives, “meaning, history and dynamics of friendship” (Bellotti 2015:77) regarding their network without heavy interference from the researcher.



Employing this combination of methods “allows observing and measuring at the same time the formal structures of networks and the content and dynamics of these structures” (Bellotti 2015:77).

Approach - Thematic Analysis



Deductive – Some concept were pre-developed according to literature and assumptions.



Inductive – More codes were added as familiarization with the data began.

Major Themes



Comparison Online vs. Offline SN



Ease of Making Online Connections



Veil of Privacy – Self-Presentation



Transcending Symbolic, Social, and Geographical Boundaries



Playing Identity and Projecting Personality

Interviews - Sample

Variables & Categories	Mean or %	(SD)	Variables & Categories	Mean or %
<i>Age (in year)</i>	23.79	7.82	<i>Education</i>	
<i>Gender</i>			High school degree or equivalent	28.60%
Male	78.60%		Some college, no degree	28.60%
Female	21.40%		Associate degree	14.30%
<i>Race/Ethnicity</i>			Bachelor's degree	14.30%
White non-Hispanic	57.10%		Master's degree	14.30%
Black non-Hispanic	7.10%		<i>Employment Status</i>	
Latino/Hispanic	14.30%		Full-time	21.40%
Asian	14.30%		Part-time	50.00%
Middle Eastern	7.10%		Unemployed – not looking	7.10%
<i>Household Income</i>			Student	21.40%
Less than \$20k	28.60%		<i>Playtime MMOs</i>	
\$20k to \$34,999	14.30%		Every day	35.70%
\$50k to \$74,999	7.10%		2-6 times per week	57.10%
\$75k to \$99,999	7.10%		Less than once per week	7.10%
Prefer not to say	42.90%		<i>Years playing MMOs</i>	
<i>Marital Status</i>			4 to 6	21.40%
Single, never married	92.90%		7 to 10	35.70%
Married or domestic partnership	7.10%		11+ years	42.90%

Ease of Making Online Connections

It depends on the **quality of the interaction and the MMO**. So, if you are not having quality interactions in the MMO or **you are not in a voice channel** then, I think **it could take longer**. But I have with Carl, **once we were in voice chat** the whole friendship between, he and I and Mary we were able to... We **developed much faster because we were able to talk through voice**. And when you had to type or whisper or whatever you know tell in the MMO it is a little bit of a slower interaction and **you cannot always hear the inflection and you do not always know the sincerity**. So, with the newer technology, I would say it is, I feel like it if you utilize that technology, I feel like that it is it can just be that fast (Robert 47, male).

Ease of Making Online Connections

[...]there is someone in my server that all I know about him is that he plays League **[MOBA]** with us and that he is an English teacher. I do not know where he is. I do not know his name or any of that. But, like when you are sitting[...] **face-to-face** with someone there is... It is **much more personal**...

[W]ith an offline relationship it is much more hanging out with them and getting to know them on a **personal level** [...] Now if I played a game where there is a lot more group interaction over long periods of time then I would definitely get to know people better. [...] for me, it has always been friends that I know in real life (Harry 19, male).

Ease of Making Online Connections

[...] it is **cheaper to have an online relationship** cause... Offline, people always wanna go out. **I do not really like going out.** I do not wanna spend money. And, that is just what they like. And, it is nice when I can go online. I have somebody there online that can do something that I like. Like, we can play video games. **We can still be together and talking as if we were in person doing what we would rather do instead of going out.** A lot more in common. It is just... **I feel a lot more open with them, I... a lot easier... opening up to them** (Jill 23, female).

Veil of Privacy Self-Presentation

I think it is easier...definitely way more easier online because **neither party has to worry about, like, appearance...** It is just what you are talking about [...] how you are saying things. And, um... online, you can send a message like at any time. Anyone can respond back at any time. **In person**, you kind of have to...**you have to have their attention at the time you are saying something.** Or, you...you... Your schedules are conflicting with each other (Emily 18, female).

Veil of Privacy Self-Presentation

I had the mentality of, like, **this is the internet do not talk about yourself**. But, like, **after a while**, like, I am getting to know everyone... Like, **I feel like I can be myself more on the internet than in real life**, sometimes. Last semester I was really stuck inside a lot because it was, like, my first semester here, so I was like, "OK." I go to class, and I might come home and play video games, but this semester, I have definitely been, like, more outside. But I would say **I am more comfortable talking online than outside... Just because I feel like I am close to my online...Or, online friends** (Sarah 18, female).

Veil of Privacy Self-Presentation

For the most part there's still a **little bit of, like, um, caution I exercise with discussing things with people online**. Uh, my...my parents did definitely raise me on the, like, you know, "**Be careful with who you interact with online**" you know? So even if I did make a good friend there would be specific details, notably like location related details... You know, I would mention I lived in Florida or something, right? That's pretty generic. Tampa area. It's pretty...pretty large. It's too large for people to really know. But, like, **I would find ways to exclude those sorts of details** and maybe not...not divulge all of my...my life (Tom 21, male).

Transcending Symbolic, Social, & Geographical Boundaries

I would say the difference is in, like, focus, where online or, like... Even on, like, a game, you have... **You're already focused on what's going on in the game.** So, you're not really... **You're not really worrying, or paying attention, or thinking about other certain things that, if say you were meeting the person face-to-face...** That might put you off. Uh, like, you might not like, say, how the cologne the person's wearing, or the clothes they're wearing [...] **Online, you're only hearing... You're only hearing the voice, how they're pacing it, and, like, the words they're saying.** And, you can only get a general picture from that, and you're really judging the person on that, versus all the other, uh... all the other little body signs, and stuff like that that you would look for if you were, like, meeting somebody for the first time face-to-face (Peter 27, male).

Transcending Symbolic, Social, & Geographical Boundaries

[age difference] it plays a factor I think **face to face for me when I meet someone, their age does**. Because there is something that you can immediately identify with someone who is closer to your own age. But **when you've already formed a connection with someone online without knowing that much about them**. Uhm I've found that it transcends that...and when you meet them...you know it transcends the whole like age gap **when you meet them in person**. Because you really don't think about it in the same way, **because you already know them** (Robert 47, male).

Transcending Symbolic, Social, & Geographical Boundaries

There's so many people I've met like just by playing games, that I would never have met in my life if I didn't. Like Jay is from [AZ]. I mean, I was born and raised in [CT]. I would have never met somebody from [AZ], or like Troy is in [CA]. It's like **I never would have met him if I didn't play video games.** There's a ton of people that it's like you know. That's why I guess the **online connections are a little more, they're more impactful to me.** Because that's something that people that don't do stuff like that... **That's something that they're missing out on.** It's like their like group, **their social circle is extremely limited to their location. And for a lot of people that game, that's not really a problem** (Colin 19, male).

Playing Identity & Projecting Personality

I'd say I present myself, like, **more honestly online**, but also, like... In a **real life**, like, I... Like, I maintain my cool, you know. **I'm, like, collected. I'm calm.** But, like, **online I'm just like, "Hey, guys. What's up? Ah." Like, excited, crazy, loud, and, like... Like, that is, like, who I am, but, like, I feel like, online, like, it's less, like, restrained.** Like, I just, like, say whatever I want. Like, it doesn't matter. Whatever (Sarah 18, Female).

Playing Identity & Projecting Personality

I would say **I am more open online with them than like in person [...]** When getting to know people, **I am more reserved than in person.** But, **after I get to know them, I am more open [online]** (Tony 19, Male)

Playing Identity & Projecting Personality

I don't know if there's much of a distinction between, like, how quickly you...I share my personal life information [online or offline...] So, um, obviously I talk about, you know, concerns about work or teaching or something with my real-life colleagues instantly. [...] My fellow gamers, um, I, you know, like, my anxiety about writing a paper or something. [...] the same thing goes... my anxieties about some aspect of the video game, I would talk with them.... **So, it's more, uh, related to topic and it's a... where a personal life comes up is whether if it's applicable to the individual.** [...] some people will ask me, you know, like, "Oh, what do you do? Like, I'll, um, "Ph.D., student in philosophy." Like I'll share that with people online instantly. I don't care. I don't think... **I'm not worried disclosing information.** Um, but, you know, uh, what's your... like, if they say, you know, "What's your fiancé's name and what's your address?" Right? Like, [...] I wouldn't have any need...It wouldn't be necessary (Gene 28, Male).

Interviews - Discussion

Importance of relationships – Online vs. Offline

- Overall, there does not seem to be a strict difference
- Respondents advocated for both sides

There are advantages to both environments

- Relationship development
- Visual Cues
- Shared Interests
- Reach limitations

Meeting others online is more affordable and accessible

Preferred game genre plays a role (competitive vs. cooperative)

No catfishing??? Honesty prevailed

General Takeaways



Interaction time is a main factor for developing meaningful relationships.

Technology has made it possible to interact more often.

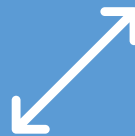


Game genre seem to influence the development of meaningful ties.

Games with a slower pace and a strong requirement for cooperation, make it easier for relationships to develop.

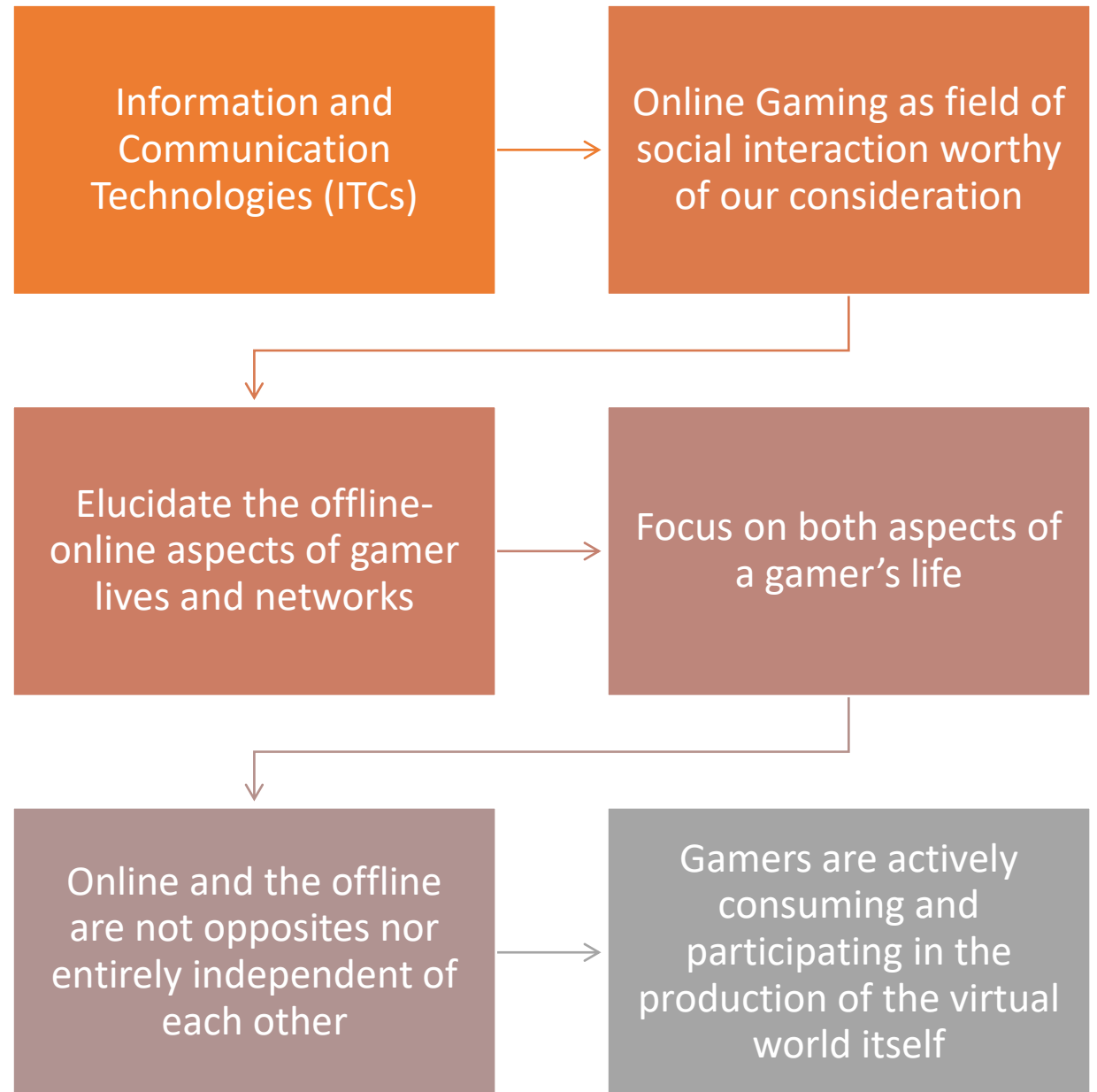


The virtual aspect of the participants' lives provides a space for self exploration and makes it easier for self-proclaimed introverts to make new meaningful ties.



Options for new ties online are limitless. Some offline ties are maintained due to physical proximity.

The Endgame



Limitations and Next Steps



Steam API – Interaction Data – Diaries –
Longitudinal friendships



Funding and Time – Larger pool of
participants, more diverse



Interviews – friendship development –
Interaction diaries



Relatively positive
aspect of online
interactions

Hate Groups
Catfishing
Online bullying

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