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Group Report: Game design patterns that facilitate strangers becoming “friends”

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Introduction

The issue

In many online multiplayer games, players enter as strangers and remain strangers. Due to a variety of unquestioned logistics, economic and social signalling choices, other human beings end up being treated as interchangeable, disposable or abusable. We can do better.

When we throw players into a virtual world without understanding the cascading outcomes of default human psychology, we are little better than an unethical mad scientist replicating Lord of the Flies. As game designers, we've been building destructive dehumanizing systems. We should take responsibility for the bullying, harassment and wasted human interactions that inevitably result.

Let's instead design games that help strangers form positive pro-social relationships.

New tools

There's a mature body of research going back to the 1950s concerning how to create systems and situations that facilitate positive relationship building between strangers. Given the right context, people naturally will become acquaintances. And a smaller number will become friends.

Much of this research focuses on describing how friendship forms in observed communities. Or how an individual might go about developing friendships. We propose intentionally using these psychological insights in a highly scalable online game design to engineer potentially millions of healthy player relationships. Many games accidentally separate players and decrease the chance of meaningful human contact. What if we design our games to be more socially meaningful?

We can't force two people to become friends, nor should we want to. But we are in a unique position to build systems that create fertile ground for friendships to blossom. And by carefully nurturing positive relationships, we can simultaneously avoid naively birthing poisonous cesspools that actively foster h

This paper cover a **simple design checklist** based off well supported models of friendship formation. into practice and you will create games that build **stronger player relationships** and **stronger communities**. In addition to making the world a better place, your games will likely have **better retent** and **improved monetization** because you are creating value for your players that speaks to their deep human psychological needs.

General Model

To build friendships, your game should facilitate four key factors. When these are present, friendships to form.

1. **Proximity**: Put players in serendipitous situations where they regularly encounter other players. them to recognize one another across multiple play sessions.
2. **Similarity**: Create shared identities, values, contexts, and goals that ease alignment and connect
3. **Reciprocity**: Enable exchanges (not necessarily material) that are bi-directional with benefits to parties. With repetition, this builds relationships.
4. **Disclosure**: Further grow trust in the relationship through disclosing vulnerability, testing boundaries etc.

What sort of friendships does this model cover?

We define a friend as another person with whom you have a mutually beneficial long term relationship based off trust and shared values.

There's a spectrum of friendship ranging from acquaintance to best friend. Different cultures have very different definition for what it means to be a 'friend'. Americans for example, tend to call relatively distant acquaintances 'friends' while a country like Germany may reserve the term for two of three closest relationship. In this paper, we treat friendship as a spectrum that ranges from stranger all the way up to deep intimate friendship.

In particular, we focus on the transition from stranger to acquaintance. This is the step that most often falters in modern game designs.

What types of games can use this friendship model?

For the purposes of this paper, we are interested in a specific domain:

- **Online**: Players are not in the same physical space.
- **Mediated**: A computer mediates all interactions between the players. Rich in person channel of communication like one might find in a board game or sport are not available.
- **Synchronous**: Players are interacting in real time via keyboard, mouse, mic, controller, voice, etc.

Other types of games benefit as well, but they have their own complexities that are outside the scope of this essay. Local multiplayer taps into high bandwidth interpersonal communication and often occurs between existing acquaintances. Asynchronous multiplayer relies heavily on a strong reciprocity loop to compensate for a weak sense of proximity.

1. Proximity

What is Proximity

The first factor to consider is Proximity. Social proximity is the likelihood of players seeing and having the opportunity to interact with one another in a game space. This space can be virtual like a chat room. It can be spatial like a room in a game match.

Think of proximity in terms of simple logistics. If players can't see one another they can't initiate the reciprocity loops and any friendship is impossible. **Without proximity, friendship is impossible.** In some sense this is an obvious requirement, yet in many games we create strong barriers to simply being together.

Concepts to think about when considering Proximity

Density

A high density game is one with a low amount of distance between players so they are likely to bump into one another. A low density game is one with a large amount of distance between players. Often we deal in terms of 'number of players' and independently think about 'size of map'. However, density, the ratio of these two factors, is often the key attribute to balance.

Frequent serendipitous meetings

Due to high density, people are likely to 'randomly' bump into one another repeatedly. This creates exposure and familiarity between strangers. Meeting the same person again and again feels like magical fate, but it is primarily the outcome of well designed statistics and logistics.

Crossing class, race and age boundaries

The single most effective method of creating friends that cross traditional social boundaries is to put two

people together in close proximity. People form friendships with those that are nearby and if their choices are limited, they'll form choices with those that would not be their instinctive (often biased) choice.

Connection to other requirements

- **Reciprocation:** Being in the same space yields parallel play. This eventually leads to low cost reciprocation loops between players
- **Similarity:** Being in the same place lets players observe similarity. Note that in studies of friends formation, being in close proximity is a stronger predictor of friendship formation than being alike. However, the impact of distance falls off quickly and once players start rarely being close together they will start forming friendships predominantly based off similarity.

Patterns that encourage Proximity

Player Identification

Other players need to be identifiable. If you see someone a second time, would you know it? Names, unique clothing, identifying animation or abilities all help players understand that they are seeing the person again and again.

Persistent spaces

A consistent persistent space that players can join and then later rejoin provides a means for players to meet and associate with players that they deem worthy of friendship. There are many variations of this:

- **Dedicated servers:** Something like Minecraft has a vast number of player run servers. These create memorable locations tied to permanent communities.
- **MMO shards:** A player is associated with a particular long lived world instance. This creates a cohort of players that advance through the content together and then to run into one another frequently.
- **Persistent sessions:** In match based games, you can keep players together when the next match begins.
- **Chat rooms:** A common chat room or group where players see names also acts as a persistent space even though it is completely abstract in nature.

Shared Events

You can increase density by taking players that are spread across time and incentivize them to all show up during the same time. Many games suffer from low player density because concurrent players are spread across multiple time periods. A play session may only be 30 minutes (or less in the case of mobile) so if you have 1000 players who play on a server, your concurrent player number would be less than 10. The goal is to increase player density of your game in terms of concentrating player density across time.

Shared events help this situation by asking those 1000 players to all show up at 8pm on a Saturday night. Suddenly, your sparse world is full of players.

Recurring events

A shared event that reliably occurs every week at exactly the same time helps create that repeated interaction that is common with persistent spaces. Having a clearly published schedule of recurring events is a great method of increasing density and serendipity.

Persistent Cohorts

If you've got a matchmaking system, it can give priority to those that you've played with previously. Or you have an MMO shard, the game can seed it with those that are started at roughly the same time period. The result is a group of players that are moving through the content together.

Guilds

Opt-in persistent social groupings like a guild or a clan are another self selected space for those that want to go further along in their friendships. It is often a greater commitment to join these groups, but the result is frequent interactions in denser social spaces.

- Guild halls create a small space for guild members to run into one another more frequently.
- Guild chat focuses conversation between guild members
- Guild targeted boss events provide focused group activities.

Elastic Instancing

Often we create instances or servers, fill them up with a cohort of players and then fail to remove them when players inevitably churn out. This leads to a large number of low density servers and weaker friendship opportunities. Elastic instancing has the stated goal of maintaining an optimal density of players.

- **On demand server creation:** New instances are only created if the concurrency is high enough. When new players start playing, we fill them into any open slots on current servers. When there is not enough room, we create a new server.
- **Server merging:** If the population of server drops below some optimal threshold there is a mechanism for merging server population. This takes a huge variety of forms based off the game type. This is easier in non-persistent game since you can merge servers when each match ends. It is more difficult in persistent games.

Hubs and choke points

Players move around in many games. If you create a location they need to return to or move through on a frequent basis, they tend to run into other people more often. Think about your game in terms of how players **flow** through it. Hubs are central areas in a hub and spoke system that players must pass through. Often utilities like stores or guild features are located in or right off of a hub area. Choke points are similar to hubs in that players flow in from a broader lower density area or set of areas through a narrow location on their way to somewhere else.

Proximity anti-patterns

Lack of identification

Many games weaken identifying signals. For example, true friendship is impossible in a game like *Joule* because the identity signals are intentionally weakened. People swap in and out of a given game session without the player realizing that their partner has changed. Some MMOs have a fixed set of class art. You are a wizard or a fighter and all wizards look the same. This short circuits the player's ability to identify a friend.

Fluid identification

Similar to lack of identification, some systems allow users to change their identifying characteristics on a regular basis. If the primary method you use to know if you've played with someone is their user name and the system allows for freedom to cheaply change that user name, other players will not be able to track changes across time.

Disposable People

An important psychological consideration for persistent spaces is that players should have a strong belief that they will have future interactions with the people that they see. There's research that suggests we have two sets of social norms: One for real people and another for 'disposable people'; those that we'll never see again. These behaviors may be very close in the polite individual, but they can end up being negative and dismissive. If players see others as disposable due to proximity being low and repeat encounters uncommon, they'll tend to act worse towards strangers. This leads to a downward spiral for the much larger community.

Large group sizes

Very large group sizes greater than Dunbar's number (80 to 150) are difficult to comprehend. The overall principle is that systems need to operate at human scales (numbers and quantities comprehensible by biological humans.) We are ultimately building systems for people and homo sapiens have strong cognitive and physical limitations that we need to take into account if we want to produce the experience we desire.

Don't fall for the engineering or marketing mindset that says bigger numbers are better. A guild system allows for 100,000 members is functionally worse in most cases than a guild that is capped at 150 because you've likely reduced social density, created swaths of disposable people and generally built a system doesn't fit with human biological constraints.

Very dense group sizes

With dense crowds of people it is difficult to see a person, difficult to identify a person and difficult to trust a person. In Realm of the Mad God, we had dozens of people piled up on top of one another. This made for a great feeling of being in a crowd, but it was hard to actually see your friends.

Many gameplay modes

When games create many gameplay modes, they create more game play surface area over which players are spread. This makes any sort of match making more difficult and results in lower concurrency for each mode.

A better pattern here is to rotate through the game modes so that everyone is playing the same mode each point. Or tie modes to timed events. Players still get some variety, but the populations aren't split.

Frequent splitting of groups

In match made games, the match ends and players may be thrown into the matchmaking again. As a result, they are matched with completely new players and thus any burgeoning relationship is extinguished.

Separating friends by skill

Games with a heavy skill component may match players in different skill categories. Or players that were once a cohort together are split because one player proves to be highly skillful.

There are many forms of gameplay that are enjoyable to mixed skill players. Cooperative games, team games, party games, games of chance or discovery, build or creative games all work. Try making use of those.

Separating friends by progress

Games that focus on leveling and power acquisition often have very large power differentials between players. If two friendly players want to play together, they may not be able to because either the newbie is so weak as to be useless to the higher level player or the higher level player gets so little reward from helping out the newbie that the friendship is the waste of their time.

Barriers to repeated play sessions

A difficult aspect for many match-based games is to get the same people to play together again a second session. This point came up repeatedly as the key challenge in forming friendships within a typical multiplayer console title. Treat putting players together for multiple matches and multiple sessions as a critical design goal.

Artificial friendships

If we automate or manipulate these proximity processes too heavily, players may feel that their friends are artificial and therefore less valuable. Heavy handed matchmaking, 'friend suggestions' or automated reciprocation loops cause players to imagine that their relationship is formed for purely utilitarian (or nefarious) reasons and trust in other players drops to some utilitarian level. To be fair, this is mostly a theoretical concern since as of this writing most games encourage friendships lightly or not at all. But as our techniques become more broadly practiced, this issue is worth watching out for.

2. Similarity

What is Similarity?

The second factor to pay attention to in our friendship formation model is similarity. Similarity is how close we share various aspects of our personality and background with another person. The more similar one person is to another, the more likely a friendship will be initiated. On first sort, we judge another person based off their visible traits, their affiliation with known social groups and any values we infer based off stereotypes. With increased contact, we also filter by communication style and personality (see OCEA

If social proximity is the barest logistical necessity to form a friendship, similarity is the criteria by which we decide who we will invest in further out of all currently available options. We can only invest in so many friendships so **we filter out dissimilar people. Without similarity, friendship is possible but unlikely**

If you believe in the value of multiculturalism or other philosophies that celebrate human variety, this may raise an eyebrow. However, people's reliance on similarity to filter others is one of the more strongly reported effects across decades of study. However, we see this as a tool to create rich social tapestry from complementary backgrounds and not some preordained reinforcement of the current social order. Designers in virtual environments have immense control over what players see as similar. We should use that power to mold the societies we desire.

Concepts to think about when considering Similarity

Similarity lowers the cost of social negotiation

Shared contexts, values, and identities bring along with them social assumptions, common language/vocabulary, and models for interaction. It is easier and quicker to negotiate a cooperative, mutually beneficial set of norms if two entities share a strong common base.

Perceived similarity matters more than actual similarity

Humans are remarkably poor judges of others. So they tend to rely on superficial details to determine someone is actually similar. In studies, this **perceived similarity is a greater predictor of long term friendship** than objective measurements of similarity.

Similarity in virtual environments can be generated

In the real world, similarities are often difficult to change. Players bring along much of human history with it comes to various religious, racial and language differences. Surfacing that baggage immediately typically results in players using it to filter out possible friends.

Luckily, in virtual social spaces, the **specific simulated cues that each player sees can be intelligently curated**, often on a per player basis. The biases of the real world need not damage a first impression inside your game.

Self reports are often highly inaccurate

The traits that people say they look for in a friend are rarely what they actually use to filter out potential candidates. For example, comparable physical attractiveness and comparable intelligence correlates with friendship formation attempts. However, polite society looks down on stating that you are friends with someone in large part because they are devastatingly handsome. Much of the machinery of detecting and acting upon similarity is either sub-conscious or impolite to discuss publicly.

Patterns for designing similarity

Visible Distinctions

The earliest element players latch onto visual similarity. Titles, achievements, badges, equipment, name all work. Think of your similarity signals in terms of depth engagement.

- **Glanceable:** What do people see in the first 200 ms? This is the most impactful location for leveraging visual similarity. Silhouettes, colors, large scale animations are used by players to judge

one another.

- **First session:** What do people see in the first play session?
- **Multi session:** What additional signals are revealed via special abilities or viewing the player in uncommon situations.

Faction Identity and Conflict

A shared tribe creates a strong feeling of acceptance. All social groups are composed of a core shared identity, a boundary that defines who is outside the group and a set of others who are known to be outside the group.

- **Define a group identity.** Determine how one player will be able to quickly display and observe membership. For example, in World of Warcraft, Alliance players all come from a specific set of races and classes. There are dominant color schemes and silhouettes that make quick, accurate identification easy.
- **Define the Others,** those outside of the group. In World of Warcraft, there is a clear opposing tribe, the Horde. They are shown in faction-specific lore to be less worthy than the player's current tribe. Differences are accentuated.
- **Define an expensive boundary** for crossing between groups. This acts as an economic wall that encourages any resources to be directed back towards the player's current tribe. Enforcing system costs for interacting with the Other results in increased polarization. If you are in a PvP situation and an enemy group can kill a player, they will naturally seek the safety that comes from belonging to a friendly tribe.

The result of a strong tribal identity with a clearly defined Other often results in strong friendship formations. They clearly understand who they could make friends with. And they have clear reasons to build those friendships in the face of an organized adversary that would swamp an unconnected individual.

Note that factions lead to some of the ugliest aspects of human culture. The very aspects that make tribes a powerful organizing force also result in hideous abuse and bullying of those they dehumanize. A potential fix is to use AI opponents in a PvE conflict. Or in survival-type games, use environmental obstacles. Often it is better to create a digital illusion than a real human being.

Shared experience

A shared experience also triggers similarity. For example, when players go through a boot camp or a ritual as an introductory experience, they can refer to that as a common moment. In an MMO, players go through a particularly difficult dungeon and wear a token from it as a sign of pride. The higher the cost of the hazing, the more long-term the resulting self-identification. There's an element of cognitive dissonance at work. A player thinks "If I invested in X, it must have been worth it."

Hard-fought matches, difficult raids, long periods spent grinding or leveling all can work as shared experiences. Near-wins are more emotionally intense than a clear win. Brutal losses can also create definitive bonding experiences. Many religions use repeated stories of shared persecution that function as a means of increased bonding between members.

Shared Interest

Players who are players the same class or role within a game have a potential affinity. Or players that on the same quest or have a shared public goal. In the game Realm of the Mad God, bonding was often simple as two players shooting at the same enemy.

Establish Aspirations

Humans look to other humans when determining how they should act. And most of the time, they give greater weight to those members of their community that have high status, aka celebrities or leaders. In highlighting celebrities within your game, you create a template for players to compare both themselves and strangers to.

Two things will happen. Players will start to conform to the ideals shown by the celebrities. And they'll influence others that conform in a positive light. Essentially the celebrities create a beacon of artificial similarity.

- **Publicly showcase players that fit the team's desired ideals.** Name, avatar and the emotional reason why they are important are key elements. Interviews, viral clips of how they play and other concrete elements help cement the norm you are trying to promote. Think of it as an advertisement that tells players how to act by giving them an example.
- **Beware of showcasing only top players on a leaderboard.** For example, you might choose to emphasize norms like generosity, self sacrifice or community service. Leaderboard players can accidentally showcase negative traits like aggressively uncontrolled competition.
- **Give opportunities for other players to mimic** dress, class, abilities of highlighted celebrities.

Similarity antipatterns

Surface real world similarity can lead to premature disclosure

For example, highlighting that a player is a woman in real life might result in a spike in abuse inside the game. The intent may be to encourage women to find other women, but if it occurs too early in a relationship, the overall impact is negative. See section 4 on Disclosure for more details.

Negative Othering

Exclusionary group dynamics can calcify and reinforce the negative consequences of othering. Systems that create homogenous groups in opposition to other groups result in the following issues.

- **Poorly met internal needs.** As social energy is dedicated to maintaining the group cohesion, less energy goes towards serving individual needs. This results in churn.
- **Poor onboarding of new players.** The barriers to entrance into the group actually hurt its growth since very few pass the increasingly rigorous purity tests. This results in the group's membership

not being replaced so you get declining player populations.

- **Stagnation.** Rigid social structure means the pure group has difficulty adapting to environmental social changes.
- **Bullying and abuse** of those deemed outside the group.

3. Reciprocity

Our third factor in friendship formation is Reciprocity. Reciprocity is fundamentally about using iterative exchange to negotiate social norms and build trust. If Proximity and Similarity are filters on who become friends, Reciprocity is the mechanical engine that makes friendship function.

Any reciprocation loop can be analyzed as a simple turn-based game between two players. Use these steps to talk about the reciprocation loops in your game.

Player A moves first

- Player A performs an **action** that targets Player B
- This action has **cost** to Player A: This is an economic cost in either tangible resources or time, attention, or social status.
- This action has a **benefit** to Player B.
- Player B observes **feedback** that results from Player A's action
- Player B updates their mental **model** of Player A. This includes a summary of historical interactions aka a relationship.
- Player B weighs the benefits of future action and makes a **choice** on what to do next.

Player B responds

- Player B performs an **action** that targets Player A.
- This action has a **cost** to player B
- This action has a **benefit** to player A
- Player A observes **feedback** that results from Player B's Action
- Player A updates their mental **model** of Player B
- Player B makes a **choice**.
- *The loop restarts.*

That's a single iteration. Reciprocation loops are typically repeated multiple times, accumulating economic and social capital to both parties. Learn to see them. Walk through them step by step to diagnose exactly where your social loops are failing.

Concepts to think about when considering reciprocity

Exchange is substantially non-material in nature

The language of reciprocity comes from the world of economics. One might imagine that friend formati reduced to a merely capitalist construct of exchanging material good and weath. Nothing could be furthl from the truth.

A valid reciprocation loop could include exchange of any of the following:

- **Recognition or attention:** A shared glance is a reciprocation loop.
- **Common experience:** A shared experience in which both react and see one another react to the same situation is a reciprocation loop.
- **Conversation:** Two people talking is a reciprocation loop.
- **Complementary roles:** A tank and a healer in an MMO exercise a form of economic specializati that costs neither side anything material. This ends up forming a reciprocation loop.

Medium of exchange

In order for reciprocity to function, there must be a medium of exchange, there must be a bidirectional between both parties. This covers a huge range of possible interactions.

- Chat, Voice, Video
- Visual space with movement
- Trade systems

Perceived benefit

Both sides need to feel that they benefit from the relationship, if not short term, at least over the long h This need not actually be factually true. See **asymmetry** below.

Friendships fail when exchanges aren't appropriately reciprocated

Each time an overture is made to another person and that overture is not returned, the relationship between those two becomes more distant. A failed reciprocation can take multiple forms

- **Player B ignores the overture.** Communication is messy, so if it was low enough cost, Player A attempt again.
- **Player B reciprocates, but does so inappropriately.** They give too much or too little. They giv wrong sort of response. The negotiation of norms is going poorly and the relationship may end.
- **Player B explicitly rejects the overture.** The relationship momentum falters and may degrade.
- **Player B uses the overture to harm Player A.** Any relationship begins to degrade rapidly.

You need to **design unreciprocated exchanges** as much as you need to design reciprocated exchar

You also need to consider that human find making overtures risky and rejection emotionally painful. W wired to form friendship and when we are rejected, it is one of the deepest cuts a person can experien

So when you design for failure, consider how to soften those failures. Consider tools like: Kindness-for language in feedback dialogs, reframing the rejection, deniability or immediately redirecting to other relationship opportunities.

The good news is that lapsed friendships that lack negative exchanges are easier to restart than new friendships. You have a common base of social norms already negotiated. This acts like a foundation of similarity in boosting re-engagement of the reciprocation loop.

Self reporting is biased

This is a tricky thing to ask friends directly about economic aspects of their relationship. Friends tend to downplay any short term or medium term benefits so as not to jeopardize long term relations. Think of terms of game theory using the following strategies:

- **Someone signals short term interest:** If one participant signals that they are reciprocating for short term benefit, the other participant may try to optimize for as much benefit to accrue to themselves before the relationship ends. Minor low cost exchanges are now weighted against the relationship endpoint and may not be initiated or returned. With this strategy, friendship quickly collapses.
- **Both signal long term interest:** Alternatively if both participants signal that they are reciprocating for long term benefit, the minor exchanges are worth it when compared against any benefit that may accrue off in the future.
- **Someone falsely signals long term interest:** Now if one person is engaging for short term benefit and one for long, it still pays to signal that you are invested long term. Since if you signal your actual short term interest, the relationship enters into a failure cycle and collapse before any benefits accrue.

This dynamic substantially biases any self reporting around friendship.

Symmetry and asymmetry

When friends describe their friendships, they take great pains to couch them as symmetrical. How one person benefits is always equal to how another person benefits. Due to the fact that self reporting on friendship is biased, our model of how friendships should be balanced is highly questionable.

Many social relations and exchanges are in fact inherently asymmetrical but reciprocal (parent/child, student/teacher, etc.). Many friendships are initiated by low status individuals seeking a relationship with a higher status individual.

Escalation of costs as friendship deepens

Friendships start out with very low cost overtures and then as each exchange is reciprocated, the average cost increases.

This makes sense from an investment perspective. Early on, a person doesn't know if the stranger will reciprocate. It makes economic sense to invest in many very low cost exchanges in the hopes that one

them will pay off. If most of them fail, it is fine since the cost isn't high.

Later on, a person has established a history of reciprocation. They can be relatively confident that a long term associate will respond in a predictable fashion even if the exchange is of higher value.

Some friendships eventually falter as the cost of each exchange grows too high. But some will continue escalating to the point where nearly no cost is too much. This is seen in marriages, families, and some long term friendships.

- Design a friendship progression curve for your game.
- Put less expensive interactions at the beginning. Encourage players to build up skills first in safe spaces. Most League of Legends players play single player or cooperative PvE games first before they risk competitive PvP.
- Defer high time and resources commitment interactions later. Raids open up after you've been playing the game for while.

Limited number of deep friendships

Since deep friendships come with expensive long term reciprocation loops, most people can only afford a limited number. Dunbar suggests that there are biological limits on how many people we can form relationships with and that these cluster in ever decreasing circles of friends. Pick which groups you are designing for.

- **1500 people:** People whose faces you recognize. These are lowest investment relationships.
- **500 people:** Acquaintances. People whose names you know.
- **150 people:** Casual friends. People you hang out with occasionally. This is the largest typical group size.
- **50 people:** Close friends. The sort you might invite to dinner.
- **15 people:** Confidants. The sort you'd tell intimate details of your life.
- **5 people:** Close support. These are highest investment relationships, but you only get a few.

Patterns for designing reciprocity

Spatial positioning

In a game with spatial positioning of an avatar (like Diablo or any FPS), the mere act of trying to stay close creates an early stage reciprocation loop. A player moves to a location. This is an invitation. Another player responds by moving in the same direction. Such move and response actions are very low cost on the part of the players so they aren't risking much by engaging. This is the primary form of reciprocation in a stranger-friendly game like Journey.

In games with rotation, players can also face one another. This is another social gesture that forms a reciprocation loop.

Emotes or signalling

Games often include emotions like a wave or dance animation. One player will start with a gesture and other nearby players will either repeat the gesture or iterate on it with some contextually interesting variation. This may turn into a synchronized dance session or a private emote-based language that was negotiated over multiple play sessions.

Chat

Chat is one of the richest methods of building social reciprocity. By tapping into language, chat enables socializing, humor, information exchange, the establishment and reinforcement of norms.

Beware premature disclosure (see **disclosure** below)

Trade (Gifting)

Exchanging virtual goods allows for a wide range of material economic transactions. Players can become reliable suppliers or reliable purchasers. In our capitalist culture, this form of relationship is familiar to us and thus players easily fall into the appropriate roles. Trade also opens up gifting and twinkling, two practices in which virtual goods are exchanged for status or goodwill but not currency.

Negotiation-heavy trade such as barter is often as much about having a conversation that builds a social relationship as it is about economic efficiency. Be aware that highly efficient, low-conversation trade systems such as auction houses can actively remove reciprocation loops from a game and thus damage the social foundation of your title.

Mutual Support

When players can help out other players, they will often fall into patterns of reciprocal helping one another. One player covering another as they rush a point. In turn that player is healed by the person they help. This tit-for-tat occurs even when players have symmetrical abilities.

Specialization

An extension of mutual support is creating specialization for each player. Unique roles that create dependencies result in reciprocation loops. The MMO trinity of Healer, Tank, DPS class naturally clump together in order to increase their overall efficiency.

Allegiance systems

You can also build asymmetric hierarchies of mutual dependency. The MMO Asheron's Call implemented

system where new players could declare their allegiance to more experienced players in return for help within the game. This created an improved new user experience and in return, the patrons earned a portion of their vassal's experience. The patrons could in turn be vassals of higher patrons and everyone had huge impetus to ensure that those below them did well. (<http://asheron.wikia.com/wiki/Allegiance>)

In the Xbox version of Shadowrun, players could resurrect dead players and earn a portion of their kills. However if the patron player died, all resurrected vassals would also die.

Face to Face interaction

In many real world studies simply being in the same space isn't enough. You need to see another person's face and be able to respond via glance or micro-facial expressions. This is not typically captured in games but it likely will start to show up as VR and facial scanning technologies become more prevalent.

Reciprocity Antipatterns

Zero Sum interactions

When there are limited resources in play, a player is forced to choose between spending a resource on a relationship or keeping it for themselves. Early in a relationship, the perceived cost and sense of loss aversion makes players selfish so they are less likely to initiate experiments. Instead **use non-zero sum interactions early on in player relationships** and carefully introduce low cost zero sum interactions players have formed stronger bonds.

Ideally, **zero sum interactions are opt-in** and used as an explicit means of taking a relationship to a higher level. For example, a player might choose to pay a fee to help level up a guild. The currency used for the fee is useful elsewhere for selfish purchases so the player ends up signaling their sacrifice and dedication to the group above their individual needs.

Trade scamming

In systems that allow the trade of material goods, be wary of tempting players to scam one another. Players with weak bonds will see an unsecured trade as an opportunity break trade promises by taking something without giving a promised item in return. This reduces trust in the environment and makes it difficult for players to form friendships.

A better system is a secure trade window that requires both players to confirm their promise and then reliably automates the exchange in the background. Ask yourself: Do the designed methods of player interaction facilitate trust? Do they protect against the bad actor's worst instincts?

Lack of predictability

The bigger picture here is that good social norms, the foundation of friendships, rely on predictability. You build a model of how another person will interact and then base complex and expensive plans how that person will reliably react as expected in a given context. **When player behavior is encouraged to be random or unreliable, it is much harder for players to form social norms.** You perform a gesture toward another player and get something random back instead of converging on a predictable social pattern.

For example, if your guild just killed a huge boss, there might be a social norm that you divide the loot. However, the system is left open ended and instead a single player takes the loot and leaves. The very player freedom that exists at that decision point results in highly unpredictable outcomes. Some games survive this (games like Eve have various forms of community censure that turn turncoats into economic and social pariahs). Most games treat these moments as incidental social friction not worth polishing. However, these 'minor' issues slowly poison the whole community's ability to make deep long term friendships.

Extreme power differentials

In many leveling-based system a large power gap forms between new players and old players. This economically segregates communities and in extreme examples there is nothing that a powerful player needs or wants from a low power player. The game design has created an high economic barrier between two humans that is totally artificial and unnecessary.

A good tool for solving issues like this is to ensure opportunities for economic and social dependency between any player in the game independent of power level. Create ties between players that make it beneficial to become friends. **Hunt down and eradicate all systems that force players to dismiss or treat another as useless.**

Over designing for freeloaders

A freeloader is a player that benefits from a community without contributing materially to its success. American culture specifically puts a large amount of effort into reducing freeloaders, often at the expense of the community. By policing and punishing the few, the community becomes more selfish and less likely to form positive friendships.

Most community systems, especially ones based on non-zero sum resources, are remarkably stable in the face of moderate free-loading. Players may complain due to their existing cultural biases, but the end result is a stable and happy society. Ask yourself if the freeloaders are actively hurting other players. If they are, see if you can shift the design toward non-zero sum interactions. If they aren't, feel free to ignore the problem and **stop wasting precious design cycles on a non-problem.**

High initial interaction costs

If an early interaction is too expensive, players won't initiate the reciprocation loop. One solution is the system can pay the cost early on to prime the pump. For example, social games allowed players to give gifts to other player, yet those gifts cost the giver nothing. They were created from thin air.

You do need to be careful as then people can think that they are being paid to be friends. When priming reciprocation pump, Give the absolutely minimal, non-distorting incentives. Slowly increase what how the system subsidizes that first interaction and look for behavior shifts at each cost increment.

4. Disclosure

Our final factor in friendship formation is safe disclosure. As players get deeper into a relationship, the nature of the reciprocation loops change from superficial mirroring to riskier trust building interactions. to the creation of deep friendships is the ability to friends to disclose new or secret information to another person.

Games that lack the tools for disclosing personal info between two people will never facilitate relationships. They may never even facilitate shallow relationships since players see that there will not be a long term future for any relationship they form in the game. However, disclosure is a highly risky and teams will often try to cut it from their designs. Sharing information before a relationship is strong enough can result in broken or antagonistic relationships.

Concepts to think about when considering disclosure

Risk is inherent to disclosure

When a person discloses personal information to another player, there's always the chance it will break a relationship. Up until this point, players have typically been performing low cost, non-zero sum interactions that are tightly constrained by game systems or social convention. Personal information brings in external history, gender, age, religion, race, values and other delicate factors that may cause the other player to not reciprocate or otherwise pull back from the relationship.

If failure to reciprocate hurts emotionally, failure to reciprocate a personal disclosure hurts substantially more. Disclosure is a laying bare of the soul for many and the fear of rejection is immense. If your game moves relationships to this point, you are making more than mere entertainment. Your game facilitates moments that uplift or scar players in formative ways.

What constitutes disclosure is highly specific to a given person and relationship

The exact contents of a 'disclosure' depends on what might threaten a specific relationship at a specific

stage with a specific set of participants. So we are dealing with an ill defined concept. However, the participants have a refined sense of what constitutes a disclosure so it is best to let them decide what disclose and when.

Patterns for designing disclosure

Rich communication tools

The concepts involved in disclosure cover a huge breadth of the human experience. Emotes aren't enough. To enable relationship building levels of disclosure you need to give players rich communication channels.

There's substantial discussion within many design teams on whether or not to include chat. The costs are easy to list. Chat that happens too early in a relationship can trigger unpleasant early disclosure and a player can be used to spam players. Children using chat are at risk of being contacted by sexual predators. There are legal and moral considerations. Developers need expensive moderators or filters to manage these downsides. Many modern teams look at this list and run as far away as possible.

However, when you cut out chat, you are gutting your long term community. Players will remain strangers and never form long term bonds with one another. Every relationship is at best like a game of Journey where anonymous people have fleeting encounters that never result in any long term impact or friends. Remove chat and you remove 95% of all positive social behavior.

When we build human systems, we should be wary of building systems that filter out our humanity.

Luckily there are ways to have your cake and eat it too.

- **Make the tools for disclosure opt-in:** Unlock chat between two people after they both agree they want their relationship to go further.
- **Give rich tools for opting out:** Give players robust tools for filtering and blocking other players who abuse chat.

Quiet Opportunities to Talk

Relaxed environments where players are doing some low intensity activity will naturally result in players chatting with one another. In action games, players are often always highly engaged with the moment to moment gameplay. There's no space to chat. As a designer, you need to explicitly carve out these slow moments in your game pacing.

Common examples include

- Healing time in MMOs.
- Lobbies in FPS
- Post match chat
- Private chat channels
- Guild chat channels

Mechanics that encourage disclosure

Simple interactions derived from party games can provide people with personal information about you like humor, status, competence, history, etc. After all, a party game is just a mechanic to encourage personal disclosure.

- **Disclose or Punish:** This is a typical truth or dare type activity. Note that even though it encourages a player to disclose, they always have an out so they aren't forced to prematurely disclose something.
- **Safe spaces:** Create spaces where anything can be said but where acting on that knowledge outside the safe space is highly inappropriate. Confessionals and psychiatrist sessions follow these rules. In Japan, people are encouraged to go out drinking with their co-workers. It's an established norm that when a person is drunk, you're not meant to take what they say personally, which allows people to provide feedback without repercussions.
- **Open reciprocation loops:** If you give something to a person and then request voluntary disclosure, they are likely to participate in order to complete the reciprocation loop.

Mechanics that loosen inhibitions

These are less common in computer games, but very common in real-life

- **Wearing silly outfits:** Anything that shifts a player out of their current social context and identity allows them to experiment with new roles.
- **Alcohol:** Moderate drinking tends to loosen tongues. Note that this may risk premature disclosure.
- **Physical interactions:** Many icebreaker games involve breaking through personal spatial boundaries. This rapidly creates feelings of intimacy that otherwise might never appear.
- **Commitment activities:** Have a player do something rather difficult or expensive. Then put them in a place where they invalidate their personal and emotional investment unless they disclose.
- **Group encouragement:** If you can get a large group of people apparently disclosing, then an individual will feel more comfortable with disclosure.

Disclosure Anti-patterns

Premature disclosure

System often discloses information about a person before they're ready to share that information. The designers often think they are being helpful, but in reality they are forcing the reciprocation loop to jump to an advanced stage before trust is built. The result is typically highly negative interactions between strangers. When a player doesn't have trust built up with another person, they use any subtle clues to activate stereotypes. Stereotypes aren't inherently bad; they are merely pre-existing schema that are used in the place of actual experience to quickly determine how to act. However, negative stereotypes end up destroying opportunities to create friendships based off personal experiences with another person.

Example of premature disclosure

- **Showing real name.** Real names include a variety of personal information about country, gender and race. Let players select their own names or autogenerate a name.
- **Defaulting Voice Chat to ON:** Voice can reveal age, gender and native language. Default it to off.
- **Showing location.** Location can show nationality. Don't show login location.
- **Purchased items (in F2P):** Showing a player has purchased an expensive item. Or that they have only cheap items. Ensure items that can be purchased can also be gotten through other means.

Highlighting dissimilarities

When a user discloses or has information disclosed about themselves, it may in turn expose any dissimilarities they may have with their current friends. This can cause the friends to rethink the relationship.

Bringing in non in-game similarities or relying on default real world similarities

Disclosing non in-game or real world similarities and assuming that they will carry the same weight in the game as they do outside of it

Metrics

So far we've considered a lot of theory about how friendship works and how it might be encouraged within a game. However, in modern game development, it is not enough to theorize and then build something; you also need to measure if we've achieved our friendship goals. And then when we inevitably realize we've missed the mark, we can use the tools covered in previous sections to iterate towards a better state.

This leads to a vexing question: What friendship metrics can we measure across our games?

We want to measure behaviors that may indicate a 'friendly' relationship between players in multiplayer games. Because we want these metrics to apply to most games, we will avoid 'in-game' metrics, which would have to be customized to the specific design of the game.

Key concept in measuring friendship

Co-play experience

People playing together.

- **Co-play:** 2 players playing in a WoW dungeon together
- **NOT co-play:** 2 players in different WoW zones chatting

Repeated co-play experience

People playing together after having played together in a previous play session. We'll refer to the first co-play as co-play(1) and the second as co-play(2). This extends up to co-play(N).

- **Repeated co-play:** 2 players playing in a WoW dungeon together the day after completing a quest together.
- **NOT repeated co-play:** 2 players playing in a WoW dungeon together immediately after completing a quest (e.g., no substantial break between them)

'Friendship' behaviors

Behaviors that imply an attempt to initiate or lengthen a co-play experience, or that may lead to a co-play experience in the future.

- **Friendship behavior:** Invite to a group; staying in a group to continue co-play.
- **NOT friendship behavior:** Attacking an enemy; healing a teammate

The challenge of strangers

For most commercial games, marketing campaigns used to acquire customers end up bringing in most strangers. So any friendship systems need to be tuned at launch to deal with large populations of people who don't know one another.

There are methods of importing friends into a game but often the "Friend Graph" in a social network like Facebook maps very poorly onto the "Activity Graph" of a game, especially a new game.

The challenge of Co-play(2)

Looking across many games (and decades of design experience shared between all the authors) we observed a key challenge: Getting players to go from Co-play(1) to Co-play(2). Matchmaking creates co-play(1) with strangers very well; **the hard part is getting people who played together once, to play together another time.**

Existing design solutions are weak and teams rarely if ever measure this critical statistic.

Metrics for measuring friendship

How much 'friendship' is happening in the game?

This represents an overall metric of 'how much repeated co-play' is happening in a game. This metric applies more easily to discrete session-based games (Call of Duty match) than larger game experiences where players may be present but not co-playing (different WoW shards; same WoW shard but different zones). A way of quantifying this:

- % of people in a session who the player has played with before. **This is a representation of how many 'familiar faces' are in a match. If a player has never played with anyone in the match before, that match is a 0%. If a player has played with all the other players, then that match is a 100%. Notes:**
 - **Multiple matches in a row with the same stranger should NOT count as a 'friend co-play' experience. A reasonable break between sessions is necessary to establish whether co-play experience is intentional.**
 - **This is a personal property; other players in that same match may have different %, depending on their unique social graph.**
- **Average % of friends across all matches, by player. This is a representation of how 'friend-filled' a player's experience is with the game. It can help identify who is having a lot of intentional co-play experiences (playing with 'friends' vs. incidental co-play experiences (playing with a constantly different set of strangers). Sudden drops in this metric may indicate an attrition risk (player has lost a co-play partner).**
- **Global stats can be computed across all player-matches. This is a representation of what the typical player's experience is of repeated co-play. It is probably most useful to identify the % of players who are at what thresholds of amount of 'friend-filledness' in the play experience.**

Note: these metrics assume that players are repeatedly playing together intentionally, and were not put together by the system repeatedly.

Measures for pre-cursors of "intentional co-play"

Beyond the above binary metric (intentional co-play: Yes/No), there are some useful pre-cursor metrics for likelihood of intentional co-play in the future:

- **Have the other on a list. Being on a 'Friends' list, or a 'follow' list, or guild list, etc. all enable better ability to do other behaviors that are pre-cursors to co-play. However, a large friends list does not necessarily result in more co-play.**
- **Invite the other to co-play. Inviting someone to co-play is (obviously) a good pre-cursor metric. Some additional measures:**
 - **Co-play invitation gets accepted.**
 - **Accepted invitation results in co-play immediately.**
- **Attempt to communicate with other. Sending a message, talking, etc. may all increase chances of future co-play. However, some communication does not lead to play (idle chat may even decrease the future co-play likelihood (rude chat)).**
 - **Response from other. Communication attempts that receive a response are often (not always) more likely to lead to a future co-play experience or future precursor**

behavior.

- Note: sentiment analysis (algorithm to determine the positivity-negativity of text) is becoming more accurate and faster to do, and so measuring these kinds of precursor becoming increasingly feasible.

Examples of 'Friendship' behavior metrics, in game

Because in-game 'friendship' behaviors are specific to the game design itself, it isn't possible to have a framework that is complete. The list of metrics below is intended to be examples for how to do that.

- Gifting. In games where gifting is possible, gifting can be considered either a pre-cursor to co-play, or even co-play itself.
- Assisted kill. In games where killing enemies results in 'assist' stats, it is possible to determine which player was 'playing with their teammates' more than others.
- Vote-Kick called. In games where people can kick a teammate off the team, which player calls votes on each other, and how they vote are good indicators of anti-relationship behavior.

Case study

Reinforcing in-game relationships via displayed metrics in Shadowrun.

The basic Shadowrun resurrection mechanic worked as follows:

- Player 1 has a cost to resurrect player 2.
- If Player 1 dies, then player 2 dies.
- But, player 1 gets half of the money player 2 makes.
- Goal: Make transparent system, system is revealed through stats.
- Goal: Caused gratitude to be felt. "Did they exchange Packets?"

Caveats

"Friendship" systems deal with potentially intense emotional territory for players. The concept discussed in this paper should be treated with care. You are dealing with real humans and real emotional outcomes.

Most friendships formed in games will only be acquaintances

We use the word 'friend' but in truth the chances of making a deep friend in a game are very slim. We simply don't have the mental bandwidth (see Dunbar's groups) to have that many deep friends. So more likely is that our games are creating shallow networks of friendly acquaintances. How to think of the game as building a friendship funnel that players progress through. It isn't a bad thing if only a few make it through to each deeper stage of friendship as long as some make it through.

Players may grow wary of overt manipulation

People dislike other people telling them they should be friends or pushing them towards friend Software can tell players things about themselves they don't really want to know. For example, don't have software define things like a marriage system and then tell two people they should be married. Instead, create opt in systems that encourage buddy behavior. Then give them tools to create ceremonies or the ability to mutually opt into a public badge that say 'married'.

Asheron's Call encouraged aggressively trying to recruit a lot of people hoping some of them s Backlash risk of this is once newbie finds out what other person was getting in return. "Did you want me because I'm rich?" causes you to question other relationships. People smell out rubber bands. Create plausible deniability of purely economic behavior when encouraging friendships

The relationship between behavior and affects

If you have two people who communicate a lot, it could be constant fighting! Be wary of numbers going up if you don't track why they are going up. **The classic example of this modern times is the dramatic collapse of games at Zynga even though internally key metrics w increasing.**

Grief-test your systems

The systems that help people form powerful friendships are very open to abuse. The need for disclosure in particular causes issues, but most of the anti-patterns listed above have some elements of grieving or abuse. Assume players will attempt bad behaviors and have plans in place for when this occurs. If your systems assume humans are always angels, you encourage their demons.

Conclusion

We believe two things when we discuss friendships:

- The facilitation of meaningful relationships between other human beings is a noble design goal.
- Games are uniquely suited to facilitating relationships.

To make friends, you need multiple people, a reason to bring them together and some form of repeated mutually beneficial interaction. Multiplayer games have all these elements. Every piece a game can be designed to remove walls and build social connections. What an opportunity!

- We can design our matchmaking and logistics system to encourage proximity

- We can design our social signaling, characters and tribes to generate perceived similarity
- We can design the economics of reciprocation loops at all stages of friendship formation
- We can incrementally enable safe disclosure based off idle friendship formation pacing.

Often we think of computer games as a single player medium for storytelling or some other evocative experience. We put games in the same category as books, movies, comics, etc. However, it is also interesting to think of games as intentional human processes; rule-based machines composed of living, breathing, growing people. They operate on the same scale as sports, religion, and governments. Such engineered human processes can help players thrive in designed virtual spaces and ultimately in their real lives.

As game designers, this is one of our great powers and responsibilities. We design these machines. We are responsible for growth and nurturing of the machine's players and communities that they form. The human process of friendship formation is an essential game design tool. We use it wisely.

Other reference material

Early theory of friendship formation

Festinger, L., Schachter, S., Back, K., (1950) "The Spatial Ecology of Group Formation", in L. Festinger, S. Schachter, & K. Back (eds.), *Social Pressure in Informal Groups*, 1950. Chapter 4.

Why do we form friendships

"From an evolutionary perspective, friendships may be seen as an unnecessary and costly relationship that involves altruism to a non-kin, non-mate individual who may contribute little to the individual's reproductive success."

http://repository.upenn.edu/cgi/viewcontent.cgi?article=1019&context=mcnair_scholars

Social media's effect on the math of Dunbar's number friendship

<http://www.newyorker.com/science/maria-konnikova/social-media-affect-math-dunbar-number-friendships>

How we evaluate the value of a person when considering friendship

http://changingminds.org/explanations/theories/stimulus-value-role_model.htm

- Stimulus: What do we see on the surface. Physical attraction or similarity
- Value: Compare values. Do they value the same things as we do.
- Role: Do we have complementary roles so we can form a working relationship.

Only half your friends consider you a friend

Friend graphs are often non-bidirectional. However, they tend to be presented as equitable in order to preserve the network for future opportunities.

<http://www.sciencealert.com/you-have-half-as-many-real-friends-as-you-think-you-do-study-fin>

Social Penetration Theory

“As relationships develop, they penetrate deeper and deeper into private and personal matters. This exposes vulnerabilities, so trust has to be developed along the way.”

http://changingminds.org/explanations/theories/social_penetration.htm

Weak ties

“In the familiarity of strong ties we use simple restricted codes, where much is implicit and taken for granted. In communicating through the weak ties, we need more explicit elaborated codes for meaning to be fully communicated. When elaborating, we have more scope for creativity and thought that it stimulates makes innovation more likely.

The more weak ties we have, the more connected to the world we are and are more likely to receive important information about ideas, threats and opportunities in time to respond to them.

Societies and social systems that have more weak ties are more likely to be dynamic and innovative. If the system is mostly made up of strong ties, then it will be fragmented and uncoordinated.”

http://changingminds.org/explanations/theories/weak_ties.htm

Selection of friends based off Big 5 personality factors

“...individuals high on Agreeableness tended to be selected more as friends. In addition, individuals tended to select friends with similar levels of Agreeableness, Extraversion, and Openness.”

<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-6494.2010.00625.x/full>

Building Web Reputation Systems

<http://shop.oreilly.com/product/9780596159801.do>

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