

Zazzler: Forming Friendships on Digital Social Networks

Technology and Social Connectivity

by

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ABSTRACT

Strong communities are important for society. One of the most important community builders, making friends, is poorly supported online. Dating sites support it but in romantic contexts. Other major social networks seem not to encourage it because either their purpose isn't compatible with introducing strangers or the prevalent methods of introduction aren't effective enough to merit use over real word alternatives. This paper presents a novel digital social network emphasizing creating friendships. Research has shown video chat communication can reach in-person levels of trust; coupled with a game environment to ease the discomfort people often have interacting with strangers and a recommendation engine, Zazzer, the presented system, allows people to meet and get to know each other in a manner much more true to real life than traditional methods. Its network also allows players to continue to communicate afterwards. The evaluation looks at real world use, measuring the frequency with which players choose the video chat game versus alternative, more traditional methods of online introduction. It also looks at interactions after the initial meeting to discover how effective video chat games are in creating sticky social connections. After initial use it became apparent a critical mass of users would be necessary to draw strong conclusions, however the collected data seemed to give preliminary support to the idea that video chat games are more effective than traditional ways of meeting online in creating new relationships.

DEDICATION

This is dedicated first to Trishelle, who put up with the endless hours of effort, to my parents for their unending support and wisdom, my family and friends who used Zazzer, discussed it with me and supported my efforts, and also to Kurt Vanlehn for advising and assisting me as I brought this concept to fruition.

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DIGITAL SOCIAL NETWORKS AND SOCIAL CONNECTIVITY

Introduction

It is well understood in psychology that social exclusion is detrimental to human well-being (Jones, 1990). The social nature of humanity drives our need to find community and create relationships. As goes social capital and connection, so goes economic growth as well as a wealth of other positive benefits to society in general (Beugelsdijk & Schaik, 2005), which in turn suggests that if new uses for technology could enhance and foster community, it could be a huge boon for society. This paper explores such a technology, which attempts to better create and maintain social relationships and connectivity.

Problem

The overall success of the internet in creating stronger community is up for debate. One early work on the impact of the internet on social and psychological well being indicated that higher internet use often correlated with a decline in actual social involvement (Kraut et al., 1998). Further research asserted that whether the internet had an overall positive or negative social impact was strongly connected to the strength of the relationships created online and that, more often than not, it appeared that the internet was more suited for fly by, superficial relationships than it was for meaningful ones (Carducci &

Zimbardo, 1995). Later it was argued the internet was good for extroverts and negative for introverts (Kraut et al., 2002).

This research was all conducted before the advent of Facebook and other digital social networks (DSN), such as Google+, defined as mobile and internet enabled social networks. These DSNs have been ultra successful, shown by both their hundreds of millions of users and their valuations from the hundreds of millions to the hundreds of billions (Worstell, 2011). Still the same problems discussed in the early days of internet research seem to remain present in some forms, with teenagers facing what researchers have begun to call "Facebook depression" (O'Keeffe & Clarke-Pearson, 2011). These findings dovetail with earlier research suggesting that if people are using their social networks to read and observe, rather than connect and interact, they will probably become socially secluded and subsequently depressed and lonely.

Whether the internet and current DSNs cause social exclusion is not important to this paper; perhaps they do succeed for the most part in helping users maintain friendships and enhance community connectivity. The point here is first, the fact that the effectiveness of the internet in creating stronger communities is being debated suggests that there is still a lot of work to be done to get technology to the point where it is more help than hindrance, and second, even the

most recent technologies still fail in perhaps the most crucial element in creating connected communities: forming friendships.

Forming Friendships and DSNs

Until now the most important part of creating community, forming friendships, has been limited, timid, and poorly supported on DSNs. As a result the majority of friendships are created offline and then ported over to popular DSNs such as Facebook, Google+, Linked-In, MySpace and others (Ellison et al., 2007; Boyd & Ellison, 2007; Barkhuus & Tashiro, 2010). These are represented as friend connections on the various sites.

Recommender systems could be a step in the right direction to support online meeting but currently aren't employed by popular social networking sites (Chen et al., 2009). Facebook's only readily apparent vehicle for suggesting friends is a "People you may know" feature (Chen et al., 2009), which finds friends-of-friends that individuals might know. Google+ suggests people from the user's Gmail contact list. There are apps available for friendship recommendation but the introduction process usually involves showing the publicly available profile information of the individual and allowing the user to add that person and wait to see if they are added back or accepted as friends. Forming friendships isn't something these networks focus on.

Further evidence of this lack of focus is that user's online interactions usually center around a core group of friends from these ported, real world, connections (Ellison et al., 2007; Chen et al., 2009). Only 17% of adult users interact with strangers on their social networking site (Ofcom, 2008). This number is higher for teenagers (Lenhart et al., 2001), but it still doesn't mirror normal meeting of strangers in everyday interactions. When people look up individuals they don't know well on DSNs, it is usually because they met them in some other context and are interested in knowing more about them¹.

Dating sites are the only DSNs that fully employ recommender systems to 'match' users, but they constrain users to a romantic paradigm (Ellison, Heino, & Gibbs, 2006). Moreover their approach is very timid. The majority of interactions after a match begin with double blind emails, incrementally leading to full identity revelation (Lawson & Leck, 2006). This is the equivalent of leaving anonymous love notes on the desk of a co-worker—actions which would not yield great results in real world interactions. More forward sites allow users to "like" or mark others as "hot" but still only allow limited access to the other's profile until a timid introductory process is completed. Online dating research concludes this is due to difficulty building trust

¹ Foursquare: <http://foursquare.com>

over the internet and suggests future work should solve this problem (Ellison et al., 2006).

Proposed Solution

Zazzer, the system discussed in this paper, attempts to address all of this by creating the first unified friend formation system using video chat to build trust, game psychology to overcome social discomfort associated with meeting new people, and recommender algorithms to optimize social pairing. In the form of an online game, users are allowed to build profiles and are encouraged to meet and interact with each other via video chat.

The meta goal of this research is to create a technology that will help build strong communities by connecting like-minded individuals in a non-threatening environment. Since that is very broad, the specific sub-goal chosen is the key inquiry: whether video chat games are effective in creating sticky relationships. Video chat games were chosen specifically because of research supporting the effectiveness of each element, which is the topic of the next chapter.

BACKGROUND: WHY VIDEO CHAT GAMES

Introduction

In order to create an environment online that reduces the pressure of meeting while at the same time allows for meeting in a way true to real life (and subsequently achieving comparable trust levels), video chat games were the chosen medium for Zazzer due to the research indicating their ability to foster relationships and trust. A simple recommendation engine was used to pair similar parties.

Video Chat and Trust

Compared to face-to-face meeting, video chat has been shown to be just as good for building trust (Bos et al., 2001, Bos et al., 2002). Video chat here refers to communication via computers with real time video and audio (most laptops come equipped with webcams for this purpose). While it takes longer to build that trust than face-to-face encounters, it does reach similar levels, which can't be said for audio or text communication (audio yields intermediate results for building trust while text communication, the most common way for strangers to interact online, is the definite worst) (Bos et al., 2001, Bos et al., 2002). In some cases video chat didn't reach the same levels as in-person meeting, but this was due to issues of poor spatial faithfulness. Once the cameras were changed to better capture gestures and non-

verbal cues, trust reached near in-person levels again (Nguyen & Canny, 2007).

This supports the notion that in order to create an effective mechanism for making friends online, there should be some form of video introduction. As opposed to the previously discussed usual method of text and visual (user images) introductions, video introductions would allow for near in-person levels of trust. Because of this Zazzer was created around video chat.

Just because a method should work the best doesn't mean that it will, which leads to the very important question: would people be comfortable meeting this way? Many of the studies conducted in this area have been done in contexts in which people would be expected to be comfortable meeting strangers, such as business (for which video chat is a great alternative to constant travel). Both Google+ and Facebook recently integrated video chatting into their sites but again, its use is predominantly for people who already know each other.

Answering this question is part of the purpose of this paper, but to find pre-existent evidence in the affirmative one has to only look at

Chatroulette², a viral phenomenon in pop culture that has been featured in news articles (Braiker, 2010) as well as television shows, such as South Park. It is a simple system which randomly pairs individuals in video chats, and even with all of the sexually explicit content people still go to it in droves to meet complete strangers. It seems they are intrigued with the idea of meeting others online through an audio/visual medium.

Game Psychology

Game psychology is also an important foundational idea for creating sticky (in other words lasting) relationships with video chat. In any sort of meeting situation, giving people something to focus on instead of the act of meeting makes it go more smoothly. Games are especially adept for this. It's why there's a whole class of games called "get to know you games"³.

Studies have found that games not even geared towards meeting lend themselves towards the creation of close relationships (Pace, Bardzell, & Bardzell, 2010). It seems that the usual anxiety and pressure many

² Chatroulette: <http://chatroulette.com>. Caution, sexually explicit video is common here.

³ For examples see: <http://www.superteacherworksheets.com/beginning-of-year.html>, <http://www.sugardoodle.net/Get%20to%20know%20you%20games/index.shtml>

people feel in interacting with new people is alleviated by having that interaction take place while they do something they enjoy. The distraction takes the pressure off.

Likewise people have been shown to prefer social games and to be much more loyal to games which allow them to interact with other people, especially when tied to real world social context (Kirman et al., 2010; Choi & Kim, 2004). The studies supporting this were done with games built over social networks, the social network being secondary. How successful would they be if they were fully integrated with a social network, with the social element being the actual purpose of the game? This is something we hope to answer.

Games are also very useful for collecting data. People will associate key words with pictures if the activity is framed as a game (Turnbull et al., 2007), and likewise it is reasonable to assume that people would contribute user information for other players as long as it is part of the game. This should give the necessary information to help improve Zazzer's ability to match users with common interests, which would in turn improve the quality of the game. These recommendations are discussed next.

User Introductions and Recommender Systems

Any system that hopes to successfully introduce people to new things would do well to use a recommender system. Netflix thought it was so important they offered one million dollars to the best movie recommendations⁴. There are many recommender algorithms that could be used to suggest friends, many of which have been shown to be effective (Chen et al., 2009); however since human beings are so complex, the recommendation engine isn't the focus of this thesis. More importantly because most people have been shown to trust digital recommendations in cases of online searches (Pan et al., 2007), it is expected that simple user pairings should be good enough for now to allow users to successfully engage in the proposed game.

Thus simple classification is used to combine personal matching dimensions with monotonic functions in the system. In the future users will be asked for feedback from the game to improve classifications, which will be vetted for trustworthiness (Leskovec, Huttenlocher, & Kleinberg, 2010). This will be done by comparing each individual's reaction with that of their partners and assuming that those who always differ are not trustworthy sources for feedback. Again that is not the focus at present since simple matching should be good enough.

⁴ Netflix Prize: <http://www.netflixprize.com>

What is important, however, is for people to be comfortable with the idea of a recommender engine. Perhaps the main reason recommender systems aren't more common in popular DSNs are the privacy issues involved in introducing people to each other. When joining a dating site, it is understood that strangers will be viewing the user's content. Joining mainstream DSNs on the other hand, users usually do not want strangers looking at their profiles. That is why Zazzer was created on the premise that users should expect to meet new people.

TECHNICAL APPROACH

Even with the body of research on video chat, games, and recommender engines, creating a system that could actually test whether video chat games successfully create sticky relationships is still a very challenging proposition. It presents two major problems. First is the challenge of creating a user experience that is compelling enough to inspire continued use. Second is making it actually work with current technology. Both will be discussed with reference to Zazzer's setup.

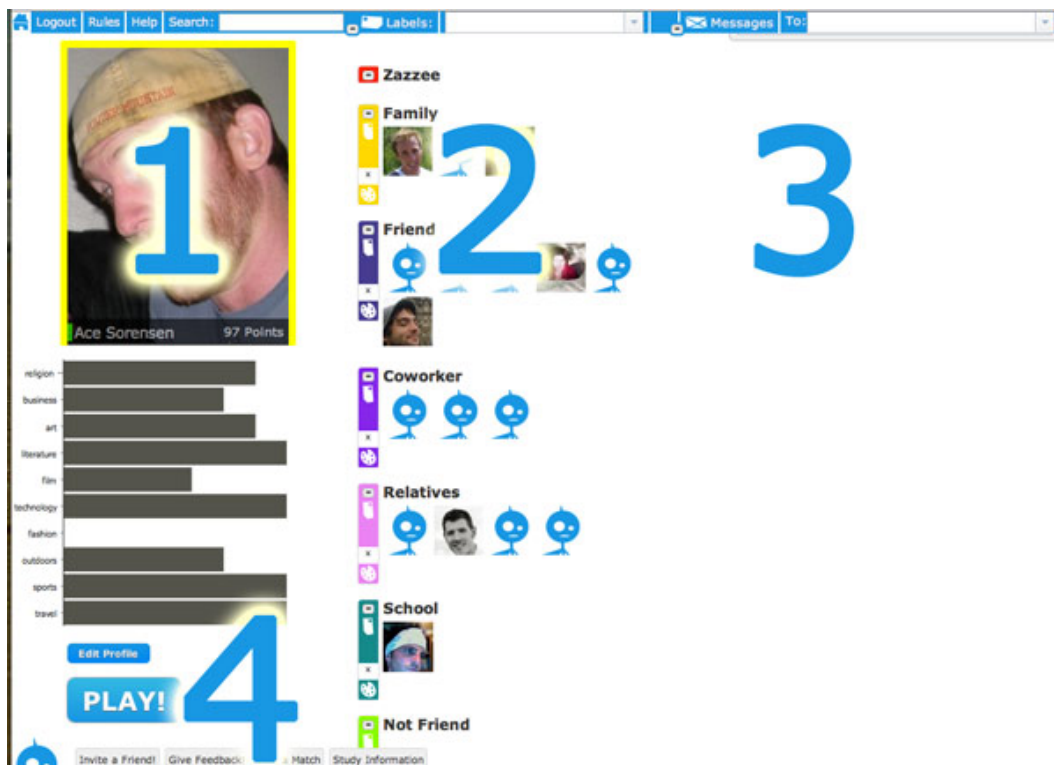


Figure 3.1: Zazzer Main Page

User Experience

There are two basic areas for the user experience: the game and the network. The game is the most important element, as it encompasses the entire purpose for the site - friend creation. It will be described first, followed by the ideas that informed its design. The second area, the network (pictured above in Figure 3.1), is also a key element because it presents the platform for the newly formed relationships to cement and grow. It will be described afterwards, as well as an explanation as to how it fulfills its role of allowing sustained communication.

THE GAME

Since making friends is the purpose of the game, in the explanation of the game users are told that when they play they are matched with their partners based on some common interest. They are not told what this interest is, but instead that they should converse with their partner in order to discover it. They are also told that they will be able to record their ideas for what it could be and select what they think is the best option at the end.

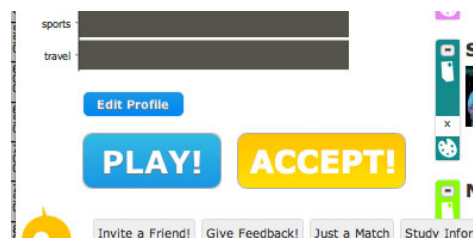


Figure 3.2: Accept Button

The game begins as either a user clicks play to initiate a game, which can be found in the area labeled 4 of Figure 3.1, or after someone else has initiated a game and the accept button is displayed, which can be seen in Figure 3.2. This takes the player to the game pane as shown in Figure 3.3.

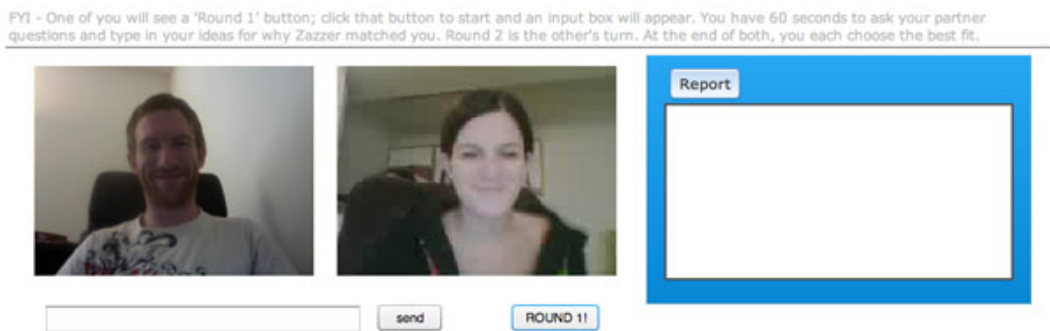


Figure 3.3: Game Pane

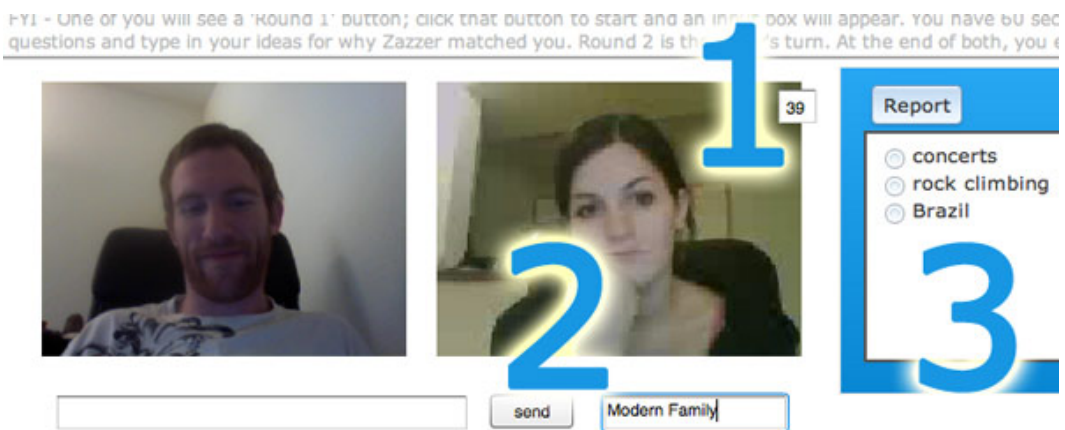


Figure 3.4: Key Areas of Game

The game happens in two, 60 second rounds. For the first round the user that initiated the game can click a 'Round 1' button (Figure 3.3). Upon clicking it they are given an input box, area 2 in Figure 3.4, which allows them to record the ideas they come up with for why they were matched. Those values populate the area to the right of the game as shown in area 3 of Figure 3.4. The timer counts down in area 1 of Figure 3.4. There is also an area for text chat to the left of area 2 in Figure 3.4, just in case the users audio isn't working well.

After the 60 seconds are up the user's input box disappears and their partner is presented with a 'Round 2' button (in the same fashion they were presented with 'Round 1' initially). Upon clicking that, round 2 begins and the second user has 60 seconds to input ideas.

After both rounds are over the video stream pauses and the users are both presented with 'Choose' buttons (Figure 3.5). During this time the video streams are paused so the users cannot discuss which item they think is the best. Both users clicking choose starts the stream again and they are then presented with their scores (Figure 3.6).

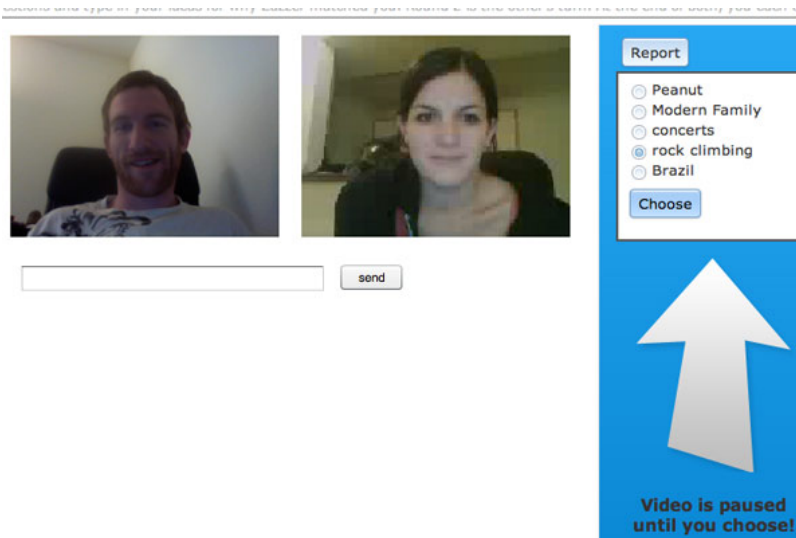


Figure 3.5: Choosing

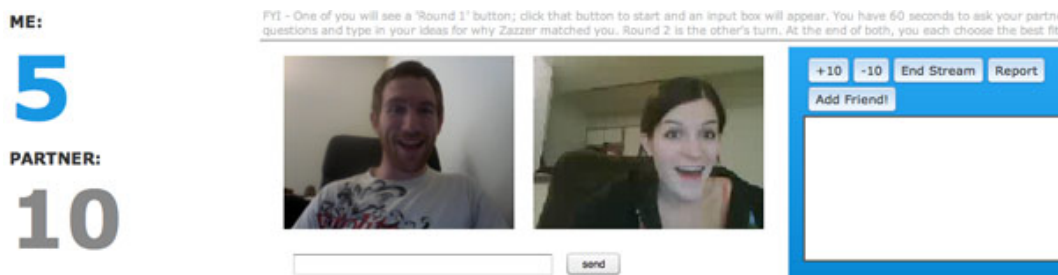


Figure 3.6: Post Game

At this point the user has some new buttons appear in the game area. They can now give their partner ten points, subtract ten points, end the stream and add the other user as a friend. The point system as well as the report button, an option always available during video streams in the game area, will be explained later.

GAME DESIGN DECISIONS

The game was designed with three main ideas in mind. First, it was made to be simple and easy to use. Second it was meant to be quick, and third it was meant to encourage future use.

Making the game easy to use was more of a challenge than it may appear at first blush. In the first iterations of the game the only visual cue that another player had initiated a game was a prompt in the notification area (which always appears in area 4 of Figure 3.1 an example of which can be seen in Figure 3.7).



Figure 3.7: Notification Area

While the notification area always shows incoming notifications as a popup bubble and allows users to see previous ones by hovering over the little head in the bottom left, it wasn't big or obvious enough for users to realize they needed to click accept inside it (accept is not picture above in Figure 3.7). They also didn't realize they needed to

click the PLAY button in the notification area to initiate games (see the PLAY button in Figure 3.7).

This inspired the creation of both the PLAY and ACCEPT buttons which appear in Figure 3.2. It also inspired an audio cue, which sounds like a phone ringing when a game is incoming, as well as a flashing notification in the title area of the webpage (Figure 3.8).

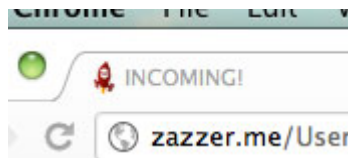


Figure 3.8: Incoming Game Notification

Those enhancements immediately increased game play and also successful game connections.

To further ease game play a short summary of the game was placed over the top of the game pane (see the grey type across the top of Figure 3.3 and the other game figures). This helped players who saw the 'Round 1' button but still weren't sure what to do. Also at the end of the game when users were presented with the 'Choose' step, a giant arrow with text explaining that the video was paused until the user made a selection helped users not be confused when their video paused (Figure 3.5).

The last efforts taken to make game play simple and clear were to put an instructional video on the home page with examples of all key points of the game as well as putting an illustrated help section in the menu above the profile in the main pane (Figure 3.1, area 1). Those together seemed to be the last touches required to help users understand how to play the game.

The next design goal was to make the games quick, that way if the player didn't like their partner the game would be over soon. Two sixty second rounds seemed to be fast enough to allow users time to come up with common interests, while not letting the game drag. If the games dragged users would be less likely to want to play in the future. However if they felt pressured to complete a round quickly that would hopefully add some excitement to the rounds.

Also because the video stream is restarted after game play players that want to spend more time getting to know their partners can do so after the fact.

The final design goal was to motivate users to come back. This was done via a points system which simultaneously motivates users to play and discourages bad behavior.

The point system motivates users to play by awarding points after the game. If both players select the same item as their common interest, the player that input that item gets ten points and the other player gets five (see Figure 3.6). If the players choose different items at the end of the game, choosing their own item will yield two points, while choosing their partner's item will yield zero.

Pausing the video stream after the second round makes it so the users can't collaboratively decide which is the best option. This allows for suspense and makes it so that even users that know each other would enjoy playing if they were matched, since they'd be able to see how well they know the other by whether they pick the same item.

Another twist is that after the game users can give their opponent ten points or take ten points away. This means that users who are abrasive and treat their partners rudely will probably be deducted, while users who are pleasant and engaging will probably get extra points.

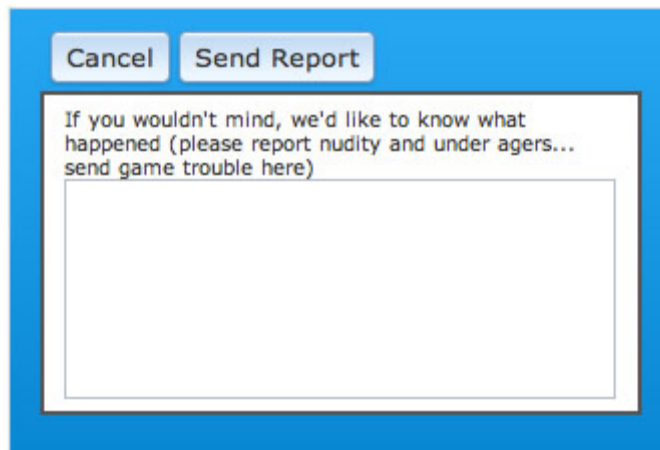


Figure 3.9: Game Options

Points discourage bad behavior because users can filter games based on points per game. In the notification area, Figure 3.9, there are game options which include the box with -5. Thus this particular player will only be matched with other players having a points per game total of negative 5 or greater. A consistently abrasive person could have an average points per game of -10, which means the player above would never be matched with them.

Because of the nature of video chat and the nudity that has plagued other video chat platforms, it is very important that users have a method of reporting players who behave poorly. This is done by selecting the report button which immediately aborts the stream, clears any residual image from the offenders video area, and presents the reporting user with the input area in Figure 3.10.

ii. At the end of both, you each choose the best tile.



A screenshot of a report area dialog box. The dialog has a blue border and a white background. At the top, there are two buttons: "Cancel" and "Send Report". Below the buttons, there is a text input field with the following text: "If you wouldn't mind, we'd like to know what happened (please report nudity and under agers... send game trouble here)". The input field is currently empty.

Figure 3.10: Report Area

Users reported get -50 points for their first offense, -100 for their next, -150 for their next, and so on. This would quickly drop their points per game below all player's thresholds except those who explicitly chose to see that sort of thing.

All of these together, the simple game play, quick pace, and points for motivation, are designed to create a simple but fun game. It is the opinion of this author that this should be sufficient for a user experience positive enough to merit repeat use of Zazzler. However the game is only part of the user experience. The network side is discussed next.

THE NETWORK

The network was designed to be simple and allow users to continue contact with people they add as friends after the game. Figure 3.11 shows a slice of it, see Figure 3.1 for the complete view.

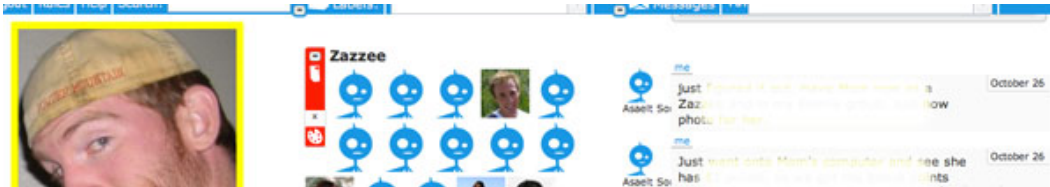


Figure 3.11: Main Area

Players can group people they meet in labels. The red "Zazzee" is an example in Figure 3.11. They can then view and send messages in the message area to the right (blurred in Figure 3.11 for privacy reasons). This is to ease communication when the other player isn't online.

They also have the ability to see an overview of the other players interests by clicking on their picture, and then to video call that user by clicking the text "video call" in the overlay on the users profile image (Figure 3.12).

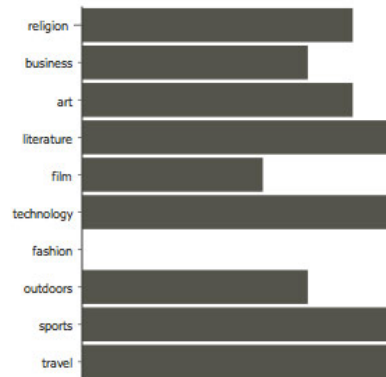


Figure 3.12: Example Profile

All of these forms of communication allow people to keep in touch after the initial game is played. The idea is, if the player enjoys a game enough to add the other as a friend, they will then be able to keep in touch afterwards and cement the relationship that they began.

Together the game and the network comprise the user experience. Again the goal was to create a game that was simple enough to be approachable by anyone, engaging enough to merit return, and transparent enough to encourage friend development.

Technical Implementation

In order to create the aforementioned user experience, many technical hurdles needed to be overcome. Some of the major problems are included here.

REST AND PUSH NOTIFICATIONS

First of all HTTP is a stateless protocol and the current web is most easily implemented adhering to REST architecture. This means that the server responds only when clients ask for information, making real time communication difficult (since it would require the server pushing information unrequested).

These problems are addressed with web sockets in HTML 5, however it is not fully implemented in all browsers yet. Even if it were fully implemented, many open source server-side solutions aren't meant to have persistent connections with clients. PHP and Apache, for example, are made to serve requests and be done with them. Keeping sockets open would not scale well. Many other work-arounds, such as Comet⁵, have similar issues (Comet implements long polling, which similar to sockets keeps the server channel open until the server has an update). Other solutions like polling (where client side Javascript asks the server intermittently whether there is any new information) are also bandwidth wasteful.

⁵ Comet: [http://en.wikipedia.org/wiki/Comet_\(programming\)](http://en.wikipedia.org/wiki/Comet_(programming))

One solution would have been to use Node.js server side. Implemented in Javascript, this server is excellent for real-time architectures because it allocates much less space for each connection and allows more concurrent open connections (it was designed with real-time, event driven programming in mind). The main drawbacks are it is still a young technology and lacks the maturity of more developed platforms, and it is harder to find hosting.

The solution I ended up settling on instead was to use flash to implement the realtime communication with a PHP back end. These technologies have been around for years and offer the most efficient solutions in both cost and time to implement.

FLASH

I chose flash because HTML 5 still doesn't support webcam, and there were no other easily accessible open source browser based webcam options available. This meant that I was already going to be using it for the game portion of Zazzer. Since it also provided out of the box support for peer-to-peer communication, it made sense to push information via the flash connection (which ended up being the main reason I decided against Node.js).

This also meant accepting that support wouldn't be ubiquitous (Apple notoriously doesn't install flash in its iOS devices) and there would be a certain level of bugginess. The peer to peer service occasionally doesn't stream well depending on users connections; it is, however, unbeatable in terms of scalability since the majority of the data relaying would happen between users with no server in between.

EXPERIMENTAL METHOD

In order to test whether video chat games successfully achieved their goal of creating sticky relationships, I implemented alternatives to the actual game element of Zazzer. That way a simple experiment could be run.

Experimental Design

Rather than only allowing users to initiate games, users have the option to initiate a paired video chat without a game if they want. Also users can receive traditional profile recommendations as another way to meet new people (Figure 4.1).

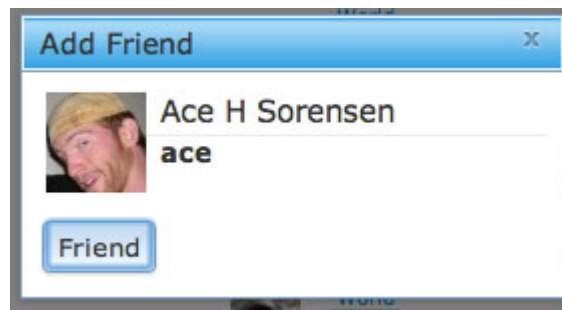


Figure 4.1: Traditional Profile Recommendation

This allows users to engage in traditional methods of meeting online if they like and also to opt out of the game if they decide it isn't for them. Giving choices made the game more robust but had the important benefit of allowing inferences based on behavior.

It is reasonable to view each game type selection as a vote, with users voting by their behavior which game option they think best achieves their goals on Zazzer. Since Zazzer is presented as a technology for making friends, it would make sense to conclude that the most selected option would probably also be the best at said goal.

The second, stronger measure for which method works best in creating sticky relationships is to compare the frequency of communication *after* a user has met another on Zazzer. If the video chat games really are the most effective, one would expect the frequency of communication between two players after meeting in the game to be greater than if players met without the game. Likewise it would be expected to be greater than those who met from a traditional recommendation.

Both of these experiments are conducted by analyzing the database after enough behavior has been logged.

Subject Recruitment

User information is stored in a database, and on signing up for Zazzer individuals are given the opportunity to allow their information to be used for the experiment, or reject it. Those that click "allow" agree that, as part of the experiment, I can analyze their information in the database to get the information required for the experiments in this

section (see Appendix 1 for the agreement). They are free to change that at any time.

The form displayed on their first login at <http://zazzer.me> was the only source of recruitment. Since Zazzer is an internet application and is open for anyone to enroll, it is not possible to know much about how users come to participate.

As far as the website itself goes, many methods have been and currently are being used to attract users. These range from grassroots marketing on social networking sites and forums, professor announcements to University classes, to Google ads. Further effort is being dedicated to add users through news avenues as well as Facebook and Youtube advertising.

RESULTS

The results of the study come from 86 active users who agreed to participate in the data collection. From those users there were 129 recorded games. However because of a range of factors from difficulties with flash to not knowing how to play the game (which informed the improvements documented in the User Experience section), only 45 games were successfully completed.

Of those 45 games, the majority came from users who knew each other previously and repeatedly played each other. The minority of people who actually met for the first time was so small that it didn't give any meaningful data.

Also it is interesting to note that there were 636 attempts to play the game. Thus only one in five was successful, with the majority of the unsuccessful attempts occurring when no other users were online. This problem as well as its solution is discussed in the conclusion. Furthermore users attempted to video chat 113 times without the game and users asked to be introduced to profiles 155 times. People seemed to prefer the game at roughly a six to one ratio. This is encouraging especially given the early difficulty people had in playing.

CONCLUSIONS

Given the lack of data it is difficult to draw any strong conclusions. It would appear that users prefer the game over the other methods of introduction, however since the actual number of successful games was low, it is difficult to know whether this was because they were trying to get the game to work, because they preferred it to other methods, or maybe because they just weren't familiar enough with the game yet to know which they preferred.

Also as with any system based on user interaction, it quickly became apparent that for any meaningful data to be collected the user base would need to reach a critical mass. As discussed earlier, users weren't connecting initially because none of them were on at the same time, so they could never be matched with people in a game. By organizing games at fixed times users were better able to get matches, but even still matches were sparse and often not available.

The times that users successfully played each other the site received a bump, with what appeared to be users checking back the next day or two for messages. However since activity was low (the visits were for only a few minutes) use slowed to a stop until the next event when other users were expected to be online.

Getting users to sign up has been a greater challenge than initially expected. This may be for a variety of reasons. Perhaps people introduced to the game didn't think it would be fun enough to be worth their time to participate. In that case the research question wouldn't be a failure, rather the implementation. It wouldn't be the first time that a potentially successful was approached in an unsuccessful way.

Another possibility is that Zazzer wasn't presented as different enough from other social networking options to merit a separate account. This would especially be the case if all of a potential users friends are on Facebook and they don't understand that Facebook doesn't provide an easy way to make friends (or possibly even care to make friends online).

Another possibility is that people don't trust a video chat social network. In that case this sort of technology would require a set of early adopters to convince others that using the technology was in fact safe and useful. It is possible that the url ending in .me instead of the traditional .com may have also inspired this lack of trust, since people are often warned of the dangers of visiting unfamiliar sites online.

Finally in retrospect it may have yielded quicker results to write an application that could plug into an existing social network, such as Facebook. That way people wouldn't feel like they were giving their

personal information to another site, or that they were being over-saturated with social networking options. It would have eliminated a lot of the concerns I addressed above, however it also would have presented its own set of challenges.

The only way to really answer these questions is to revisit the different elements of Zazzer, improve them, and allow time for the user base to mature. Given the short time it has been available, 86 users is actually quite encouraging. Perhaps a bit more will offer the expected results. Either way I am dedicated to improving Zazzer and following up after some of these questions have been answered.

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APPENDIX A

EXPERIMENTAL CONSENT FORM

Dear User,

I am a graduate student in the School of Computing, Informatics and Decision Systems Engineering at Arizona State University and I'm researching how effective video chat is in forming friendships online. You must be 18 years old to participate, but if you would like to assist in evaluating its effectiveness click 'I accept' below.

Your participation is completely voluntary and there will be no penalty if you don't or even if you decide to withdraw later. Accepting will merely allow me to retrieve the time you met another individual on this site, the way you met them (whether through the site recommending their profile, you having a video chat with them without the game, or you participating in a video chat based game), as well as the number of interactions you have with them here after your initial meeting. An example of what that would look like is:

Met: 10/11/2011 7:15pm. Type:Video Chat Game. Number of Subsequent Interactions: 10

As you can see we will NOT collect your name, any of the content of any of the messages, or any other information personally identifiable

in any way. In fact I won't be seeing any of that as it will be done automatically using a script. I'll be using the results in my Thesis and possibly a publication, so if you're willing I'd appreciate it. Either way, enjoy Zazzer!

If you have any questions about this study, your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the principle investigator - Kurt VanLehn at 480-727-6348 or email him at kurt <dot> vanlehn <at> asu <dot> edu. You may also contact me, Ace Sorensen, the co-investigator at 602.633.5477 or my email ahs <at> asu <dot> edu. Also available is the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

Thanks