SNAG: Social Networking Games to Facilitate Interaction

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Abstract

Because professional relationships and a sense of community are so important for career mobility and satisfaction, it is important to foster and support these relationships early. However, research has shown that women and underrepresented minorities approach these relationships differently and may need help to develop networking skills. To combat both of these problems, we present SNAG, (Social Networking and Games), a suite of mobile and Internet games to facilitate social networking within a professional community. We present Snag'em, a game that helps conference attendees build meet one another and track their new contacts.

Keywords

Games, Social Networking

ACM Classification Keywords

K.3.0. Computers and Education: General. K.8.0. Personal Computing: General - games.

General Terms

Design, Human Factors, Measurement

Introduction

Communities are defined as the result of interaction and deliberation by people broght together by similar interests and common goals [11]. These interactions, however, do not always create a community that is representative and inclusive of all members. Certain factors such as level of extroversion, position within the community, and even native language can cause social inequality between all members of the group, influencing the growth of the community [5]. In a conference setting, this can impact the way individuals interact with one another and be detrimental to overall conference success. A few academic institutions have created technological responses to this unfortunate problem [3, 5, 6, 9], though little work has been done to systematically evaluate these techniques.

In an academic setting, a sense of community has a strong positive correlation with retention. A feeling of community can be nurtured with small group activities that augment the individual's role within a setting and helps students to foster connections [7]. Creating an educational community that specifically fosters student interaction significantly increases both success and retention rates [1,7]. This emphasis on collaborative learning is vital, with Wegerif once noting, "without a feeling of community, people are on their own, likely to be anxious, defensive, and unwilling to take the risks involved in learning" [10].

Unfortunately, social interaction among students does not just happen; rather, it must be intentionally designed in order to produce the intended results [7]. Regardless of the benefits, however, social interaction is not yet strongly supported in most university classes, and many professors do not integrate existing social networking sites into their assignments. There are a few possible reasons for this, including professors trying to encourage social interaction, but being unsure of the proper way to approach the problem [2, 4]. Of course, encouraging student socialization is not universal; some professors do not believe that networking will significantly benefit their students, or may not have enough time to design environments to promote interaction. Our goal is to augment both conferences and universities through creating a collection of social networking games to support community building. With social networking games, we hope to broaden participation and increase retention rates within science, technology, engineering, and mathematics departments and careers.

The SNAG project involves a team of 10, including 8 women, 2 African Americans, 2 faculty, 3 graduate students, and 5 undergraduates. Students are extremely enthusiastic to be involved in integrating mobile technologies with pervasive games and social networking technologies. The popularity of the project indicates SNAG's potential to engage a broad population in computing and research.

SNAG Games Suite

The SNAG games suite will consist of a wide variety of games to facilitate social interaction to support the variety of goals that diverse players may have for social networking. The games fall into three main categories: one-on-one, few-on-few, and many-on-many. These interactions all differ in the *quantity* of people playing at a time and the *quality*, or depth, of the information a game should help bring out. For example, 1-to-1 interactions are important for building relationships, while few-to-few can help support teams, and many-to-

many will likely help large groups such as computing departments build a sense of identity.

All games will be downloadable applications for smart phones or can be played through SMS texting, though some games will also be accessible over the Internet. For example, players can sign into the SNAG site at any time to view their contacts. We chose to develop mobile phone applications because it allows players to engage instantly in any location- making it possible for players to engage anytime, anyplace.

Figure 1: Conference attendees playing a SNAG game.

Snag'em

Snag'em is a large group networking game that is essentially an online and interactive human scavenger hunt. Snag'em was developed in PHP and MySQL, providing a web-based front-end which allows players to create their online profile and forge connections with other users. When players register to play this social

networking game, they choose tags to describe themselves and their interests, such as their hobbies, jobs, and academic status., These tags are used to generate missions, such as "SNAG someone who works in the Games and Learning lab," and can only be completed by interacting with a person who fits this qualification. Most of the game's interactions are enabled by our flexible MySQL database design, which allows new types of tags to be integrated into the game seamlessly. This game can easily be deployed in either a conference or university, which makes it very representative of the other games in the SNAG suite.

Game Play and Mechanics

The first thing new users do in Snag'em is create a profile, including tags and a virtual avatar. Then, the game randomly generates five missions and the user can choose the one that best fits the type of person they want to meet. Players "snag" other players who meet the mission criteria, by entering their 4-digit SnagID via text or browser. This ID can be texted in or entered using a browser. To dissuade cheating by entering in random ID numbers, points are deducted for incorrect answers. This also helps to encourage more substantial conversations with an individual, because it motivates the player to make sure the person does, in fact, have the trait they need to locate. Difficulty, in this case, is defined by the probability of people in the community who associate with a given tag. More points are awarded for more difficult missions. To ensure these quests are neither too easy nor too tedious, missions will only be generated when 10% - 90% of players fit the given qualification. When the player has achieved their mission, they can generate a new list of quests and play again.

In addition to single snag missions, players can also play *event* missions. Community events, which players and moderators can add to the Snag'em website, appear as missions, and players can "accept" them by RSVPing that they will attend. Later at the event, a code will be announced and attendees will be able to enter in the code to receive points for their RSVP. If players RSVP and do not attend, points will be deducted from their overall score. As a reward for going to these events, we provide the player with in-game prizes such as new avatar customizations or "forfeit mission" coupons that allow players to forfeit missions without a point penalty. Encouraging students to attend community events is an important aspect of Snag'em's influence on retention.

Network Connectivity

One of the most notable aspects of Snag'em is that it encourages player's to build a cohesive, strong network by offering connectivity bonuses that boost how many points are earned per snag. When two people have snagged each other for a mission, the connection between these two people is mutual and they are referred to as friends. When snags are not mutual, a weak connection is created between the two players. By rewarding more points for more complete networks, we encourage players to help their friends in order to form more valuable social groups. Currently, we are designing a visualization of players' social networks, ranging from their direct snags to information about friends-of-friends. With this, user will be able to form a cohesive idea about whom they've connected with for missions, and where their strongest connections lie. We will use color and line thickness to portray information about the network back to the user. For example, strong connections are formed when there are mutual

snags among a group of people, and will be denoted with darker and thicker lines. We will also show users the groups where they are forming strong and weak relationships, to promote players to engage with more groups. Higher bonuses are given when a player snags a person outside of their usual network(s). This system encourages players to interact with people from different groups, while also promoting regularity in these interactions to build strong connections.

Evaluation

We performed a pilot study of Snag'em at the STARS Celebration 2009. A "SNAG booth" was set up close to the registration desks for the entirety of the conference.   At this location, we provided two SNAGEM laptops for people to register to play. Throughout the conference, we observed players playing the game in the conference building, asked for feedback and made improvements as we could. We also continuously monitored gameplay on the Snag'em website. An anonymous survey was available on the Snag'em website.

We found that eighty of 280 attendees (28%) played Snag'em over the course of three days. Of those participants, forty players (50%) successfully scored points in the game and 28 (35%) completed two or more missions in game. Player activity was consistent throughout the conference, with players playing at all hours of the day from as early as 8:30am to as late as 10:00pm, even though conference sessions usually ended at 6:30pm. We were also surprised that players immediately resumed play after brief game outages. The game suffered from several hacking attempts (with players giving themselves many points and attempting to destroy parts of the database) and two server

shutdowns. Despite the game's vulnerabilities, Snag'em received positive feedback and remained popular throughout the conference.

The moderators observed the players as being among the most gregarious attendees at the conference. Fourteen players completed our anonymous 11-question survey about the clarity of the instructions, ease of play, design of the game, and awareness that the game could be played in a browser or via text messaging. All but three survey respondents agreed that the game was easy to play, and only one player reported not understanding the instructions. When asked what they would like added to the game, players requested: more complex ID numbers, combo points for completing successive missions, more meaningful game updates, points for being snagged, pictures for players, links to facebook, a persistent leaderboard, automatic pre-registration for all conference attendees, a way to skip a mission (if it's too hard), and more ways to snag other players. We have since integrated most of these suggestions into our newest version of the game. Respondents most often cited meeting new people as their favorite aspect of Snag'em. The game gained enough popularity that Spellman College asked to use the game for their "Geek Week" event in Fall 2009.

Discussion

The SNAG games suite has two main goals: to provide students with fun ways to naturally augment their social networking with people in their community and to assess how different types of game-based social facilitation tools are used. Research states that a strong community can increase the retention rates of students, particularly minorities, in computer science,

though there has been no work evaluating how we can use mobile social networking games to foster the growth of a strong network of people.

We plan to conduct formal studies on SNAG games to measure their effectiveness for promoting community. In Spring 2010, we are conducting a formal study of Snag'em to evaluate how it can promote a sense of community among computing students at UNC Charlotte. Our hypothesis is that the game will encourage computing students, and particularly undergraduates, to engage in our community. To test this hypothesis, we plan to conduct a pre-post test study to determine engagement in our computing community, paired with measures of game play and usage of the Snag'em website. We will survey students about their level of engagement and interaction with faculty and other students, particularly for study groups and office hours. We will measure participation in extracurricular activities such as the ACM and other computing student organizations. Survey measures will include positive/ negative affect, Likert scale items and free response questions. We also plan to measure how effective they are at fostering relationships that last after game play has ended. We will examine how SNAG games are used as icebreakers, and if people use their saved contacts to build stronger and more permanent relationships. This information will help us understand what criteria best facilitate interactions between people in a university or at a conference.

Each SNAG game will be evaluated separately to examine individual effectiveness in regards to its fun, ability to motivate and facilitate conversations, ease of use, and, for some games, how extended use over the semester affected the players' feeling of belonging

within the community they were playing with. We will also evaluate the games as a whole to identify design principles for social networking games for different types of players.

The Snag'em project is already working to promote broader participation in computing research for its developers, most of whom were women and minorities involved in an undergraduate research experiences in summer and fall 2009. It is important to build community in science and math departments and at academic conferences to broaden the participation of women and underrepresented minorities in these vital fields. Addressing the different social interaction styles of diverse groups may help increase a sense of belonging for those who feel different in a field, and remove the barriers to their continued participation. We are committed to designing social networking games based on research on communities of practice and broadening participation, and conducting rigorous scientific evaluations of our games.

Acknowledgements

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