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GROWING OUT OF ITS SKIN: PRINCIPLES OF THE EVOLUTION AND EXTENSION OF THE INTERNET CHESS CLUB, 1995 TO PRESENT

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Abstract

The Internet Chess Club, or ICC, is a highly successful virtual gaming community. This paper examines the evolution from its 1995 inception as a pure gaming community to the present day as a successful business with over 26,000 paid members. We give a particular focus on the underlying qualities the ICC possesses in order to succeed and grow such as utilization of real-world credibility indicators (titles), a robust economic system, and mechanisms for user-contributed feature extensions. As ICC expands in scope and scale, its segmentation strategies are analyzed as well as the impact of these extensions on its business strategy.

The paper also discusses a novel method of data collection in an online community; the use of a participant/observer software agent to poll the community at regular intervals at collect data as well as promote a voluntary questionnaire as part of its service to the ICC community. Data collected by the agent in its first month of operation are analyzed and discussed.

Introduction

In the early 1990s, there was a public code base for client-server based Internet chess playing. Prospective chess players could telnet into a server machine (which was somewhat nomadic), logon with a self-declared and unique ‘handle’ or ID, and then challenge one another and begin play. There were severe usability problems in the nascent Internet chess offerings. The first was the lack of a graphical interface. With a text-only screen, users were reduced to representing a chessboard as an ASCII 8x8 grid. The second was an unwanted penalty for players connecting from relatively slower networks than their adversaries. Network delay caused the slower connection speeds to be punished with less thinking times.

In 1993 and 1994, Daniel Sleator, a Professor of Computer Science at Carnegie Mellon University, was an Administrator and Systems Programmer on the Internet Chess Server (ICS). He fundamentally reworked the code base and implemented useful chat features such as “shout” (a broadcast mechanism to shout to all logged on), “whisper” (where observers of a game can talk among themselves, discussing the game in progress, without disturbing the players), and “kibitz” where observers’ comments are also heard by the players.

In 1995 Sleator made the decision to privatize his altered code base; he named the new offering Internet Chess Club (ICC), reachable at telnet://www.chessclub.com. There were two key developments that facilitated this decision. The first was the presence of nascent graphical interfaces for playing chess which had been contributed by chess players at large on the Internet, supporting 16-bit Windows, Macintosh, and X-Windows platforms. The other important advance was Sleator’s innovative implementation of “timestamp”, a program that runs concurrently with the graphical client. Timestamp neutralizes the disadvantage of a slower network connection by separating network latency from thinking time, thus ‘leveling the playing field’ no matter what the player’s connection speed to the server. He established ICC on a subscription basis in early 1995 and in the first quarter of 1995, had 223 paying members (at $49/year/adult; $29/year/student). The public code, which only offers a subset of the ICC features, remains operational and is now called “Free Internet Chess Server”, or FICS, and is reachable at telnet://www.freechess.org:5000.
In March of 2001, the ICC boasts an impressive 26,000 paid members, with an additional 45,000 free week-long trial accounts (a percentage of which it hopes to convert to paid status) and a further 5,000 free accounts accorded the computer programs, and titled players (see next section for discussion of titles). This paper addresses some of the key design principles that ICC has followed to account for this success and also discusses how the domain, virtual gaming, offers interesting differences from the mainstream literature on virtual community design.

Ratings and Titles

Chess prowess is measured by a rating, which is an integer value that can go up or down depending on performance in a player’s lifetime. There are chess ratings managed by national federations, such as the US Chess Federation (USCF) in the case of the USA. The USCF has about 90,000 members as of January, 2001 and the average rating in the USCF active player population is about 1,200. A broader organization, of which the USCF is a member, is the World Chess Federation (Fédération Internationale des Échecs, or FIDE). FIDE was founded in Paris, 1924 and “with 156 member federations and more than 5 million registered players worldwide, FIDE is one of the largest organizations recognized by the International Olympic Committee.” (FIDE, 2001). FIDE establishes the requirements for official FIDE titles that are lifelong awards and bestowed at annual FIDE congresses. FIDE ratings start at a minimum level of 2,000; the highest rated player currently in FIDE is Garry Kasparov at 2849.

ICC ratings follow a scheme similar to FIDE and USCF. However, ICC offers many kinds of chess (fast time controls, slow time controls, and also different games which are based on chess) and each chess variant has its own, parallel, rating scheme. As of March 2001, the average rating on ICC for standard (slow time controls), blitz (fast time control, such as 5 minutes per player per game), and bullet (very fast time control, such as 2 minutes per player per game). It is interesting to note that the rating means and standard deviations hold across the various time controls.

<table>
<thead>
<tr>
<th>ICC Chess Category</th>
<th># Active ICC Accounts in this Category</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>4,265</td>
<td>1580</td>
<td>337</td>
</tr>
<tr>
<td>Blitz</td>
<td>16,725</td>
<td>1593</td>
<td>470</td>
</tr>
<tr>
<td>Bullet</td>
<td>7,074</td>
<td>1597</td>
<td>419</td>
</tr>
</tbody>
</table>

Separate, but somewhat linked, to ratings are “Titles”. FIDE (world) titles may only be earned by a sufficiently high performance in FIDE-rated events. A player must score sufficiently highly in three FIDE events in a five year span to earn a FIDE title. Each qualifying result is termed a “Norm”. For example, to earn a Grandmaster title, the player must perform at a 2600-rating level in those three events; and for International Master, 2450. Thus the title is a good indicator of chess competence at the global level and accords a lifelong status. FIDE only sanctions events with a broad international representation to avoid the scenario of national federations organizing events with local players only to earn norms without the local players undergoing the proper international “test”.

Table 2 shows the FIDE title and rating statistics on the January, 2001 FIDE active players list and the corresponding membership on ICC for each title group.

<table>
<thead>
<tr>
<th>Title</th>
<th>N_{FIDE}</th>
<th>μ(Rating)</th>
<th>σ(Rating)</th>
<th>N_{ICC}</th>
<th>% of Title Group on ICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grandmaster (GM)</td>
<td>733</td>
<td>2519</td>
<td>80</td>
<td>440</td>
<td>38%</td>
</tr>
<tr>
<td>International Master (IM)</td>
<td>2,065</td>
<td>2494</td>
<td>63</td>
<td>548</td>
<td>21%</td>
</tr>
<tr>
<td>FIDE Master (FM)</td>
<td>3,057</td>
<td>2301</td>
<td>60</td>
<td>187</td>
<td>6%</td>
</tr>
<tr>
<td>Women’s Grandmaster (WGM)</td>
<td>169</td>
<td>2330</td>
<td>103</td>
<td>39</td>
<td>19%</td>
</tr>
<tr>
<td>Women’s International Master (WIM)</td>
<td>356</td>
<td>2199</td>
<td>79</td>
<td>38</td>
<td>10%</td>
</tr>
</tbody>
</table>
The drop in membership percentage from IM to FM can be explained by the fact that ICC management decided to only offer free membership to FIDE GM’s, IM’s, and WGMs. The membership percentage figures for GMs, IMs, and WGMs of 38%, 21%, and 19% are quite substantial and add to overall prestige of the ICC community.

**ICC Success Strategies**

Many of ICC’s success strategies can be traced back to mainstream virtual communities literature. Some aspects are specific to virtual gaming, though.

*Leveraging The Dynamic Energy Inherent in Volunteerism*

ICC makes use of a volunteer base to provide 24x7 service. This volunteer group is multi-lingual. The volunteers are recruited to address the observation that “online communities can connect narrow, targeted segments while leveraging the *ubiquity* of the web to generate sufficient reach.” (Bughin and Hagel, 2001). This implies that international, multi-lingual support is a must given such reach. In fact, ICC’s recruitment policy specifically indicates that it often seeks new administrators to address gaps in its language skill set.

ICC is following other well-known cases in its harnessing of volunteers. In the case of About.com (Cothrel and Williams, 2000), volunteer Guides (geographically dispersed as are ICC volunteers) may assemble at a “virtual water cooler” (in ICC, there is a virtual ‘channel’ for this corps). In both About.com and ICC, the voluntary nature of participation is acknowledged by the software; both sites “draw upon the discretionary energy of volunteerism” (Cothrel and Williams, 2000).

*Coupling of “Real World” Status with New Forms of Internal Status*

In traditional text-based chat rooms, such as the LambdaMOO Multi-User Dungeon (MUD) described by Curtis (Curtis, 1995), characters invent elaborate personas in a set of biographical notes which are perusable by the other characters. In a MUD, the personas are wholly divorced from real life status or credibility. Thus, the LambdaMOO “wizard” (Curtis himself in his tale) is treated with great deference and awe while the other characters proceed willy-nilly through a series of virtual chambers.

ICC, on the other hand, takes advantage of real-word chess titles (see Table 2) as a status symbol that persists in the virtual world. A player’s title is displayed with the “finger” command (which shows self-declared biographical data as well.) Only titled players may offer lessons or other services in the ICC economic system, discussed in Section 2.6.

The ICC owners have also chosen to introduce new, internal status orderings. They appoint voluntary Administrators (flagged with a “*” character) and also voluntary Helpers (flagged with an “H” character). Administrators can change a player’s e-mail, add time to a member’s account, and check on payments. They have access to commands (disciplinary and administrative) and the ability to set user’s variables and assist with higher level technical support. Helpers are on a lower rung. They may only answer questions directed to the general Help Channel (Channel 1, see section 2.3 for a discussion of the Channel segmentation).

*Planned and Contributory Segmentation*

According to Jones and Rafaeli, in a “Virtual Public” such as the ICC, segmentation strategies are critical to combat information overload (Jones and Rafaeli, 2001). The ICC supports Communities of Interest - users who interact intensively with one another, but only on limited topics (Hagel and Armstrong, 1995) by the use of “Channels”. For example, there is a politics channel, a non-chess programming channel, a religion channel, a sports channel, many language channels, and much more. If members offend one another, ICC offers the censor command to stop receiving indefinitely any communication from an offending party; this is similar to the LambdaMOO “gag” command (Curtis, 1995).

The channels on ICC are not only limited to general chat. Sometimes new channels are introduced to support specific member-contributed innovation which increases the feature set of ICC as a whole. Related worlds, not part of the original ICC, are glued onto the ICC code base and new channels are dedicated to the related worlds.
Table 3 shows some of the internal (ICC-staff) and external (member-contributed) innovations that have occurred in ICC over the years 1995 to the present.

### Table 3. Timetable of Key ICC Feature Enhancements

<table>
<thead>
<tr>
<th>Date</th>
<th>Feature</th>
<th>Origin of Feature</th>
<th>Description of Feature</th>
<th>Targeted ICC Community or Subcommunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>March, 1995</td>
<td>Timestamp</td>
<td>ICC internal</td>
<td>A way to ‘level the playing field’ so that a slow network connection does not penalize the lagging player.</td>
<td>All. Gives greater fairness to all games if network delay subtracted away from thinking time.</td>
</tr>
<tr>
<td>March, 1996</td>
<td>Mac Timestamp</td>
<td>ICC internal</td>
<td>A way to ‘level the playing field’ so that a slow network connection does not penalize the lagging player</td>
<td>All connecting to ICC with Macintosh OS</td>
</tr>
<tr>
<td>March, 1996</td>
<td>Blitzin</td>
<td>ICC internal</td>
<td>This is the powerful ICC Client software which offers users a wide range of features to support their game playing, lesson giving and taking, socializing, and more. Need to update auto-sensed; downloads available from ICC website, <a href="http://www.chessclub.com">http://www.chessclub.com</a></td>
<td>All connecting to ICC with a MS-Windows OS (Win 95, Win 98, Win NT, Win 2000)</td>
</tr>
<tr>
<td>July, 1996</td>
<td>Speedtrap</td>
<td>ICC internal</td>
<td>This account reminds ICC users that computer cheating is not tolerated. Members who suspect cheating can message SpeedTrap.</td>
<td>People who want to report cheating.</td>
</tr>
<tr>
<td>January, 1997</td>
<td>Chekels</td>
<td>ICC internal</td>
<td>This is the economic framework whereby lessons and other services can be offered by qualified vendors</td>
<td>All. Titled players may offer services and charge chekels, respondents use ICC software to purchase and spend chekels when accepting offers.</td>
</tr>
</tbody>
</table>

**Recognition of the Fundamental Tension between Competition and Pedagogy in Online Gaming**

In online gaming, one of the most important pillars of the infrastructure must be the perception of fairness to the would-be competitors. Thus, if one wishes to enter a contest, it is necessary to have as level a playing field as possible. ICC’s “timestamp” feature, which subtracts away network latency (introduced in March, 1995 – cf. Table 3) addresses one aspect of necessary fairness. Another is the prevention, insofar as this is possible, of unfair consultation during the competition. In chess, this means detecting and punishing the use of computer chess engines during a purportedly human vs. human game. ICC has unrevealed yet detailed algorithms which to date, according to ICC claims, have successfully detected dozens of computer cheaters. The computer cheaters have the option of apologizing publicly in their biographical “finger” notes and promising never to cheat again or being banished from the community.

However, there is another important segment of a gaming community that does not care about competition or the levels of fairness therein. This other group cares about improving their play; in other words, the pedagogical value of the ICC service. Participation is desired but not competition. The dimensions of competition and pedagogy are depicted in Figure 1.

As Mitchell writes (Mitchell, 1995), the fundamental choose is between participating or spectating, watching others play. ICC offers many features for both camps, as shown in Figure 1. Observers can discuss games in progress among themselves; or people who want to learn can take private lessons or play over games from personal libraries or the central ICC database at their own pace.
Achieving Rich Functionality Through the Client Software “Blitzin”

The ICC graphical client, “Blitzin”, is a powerful mixture of text and graphics that benefits all of the sub-communities: players, lecturers, automated computer programs, and those who visit simply to chat and socialize. This conforms to the idea that a vibrant online community “should have an architecture which tightly links discourse to a relevant knowledge base to best support communities of practice (Wenger, 1998, as discussed in Jones and Rafaeli, 2001).”

One of the important ICC knowledge bases is its games database, composed of over 1 million games as of March 2001. This database is in an internal ICC format and cannot be exported to outside programs. Only members may search and playback games from this database. Such a database is particularly useful for the professional and semi-professional segment of the ICC user base: this supports the idea that “Online communities which support members with shared professional interests create and have stewardship over collective goods (Millen, 2000).”

Recall that online communities have two interrelated constitutional elements: an association of member agents (human or artificial) and the enabling electronic medium (the community supporting platform). The agents communicate thru the medium and generate common content. (Stanoevksa and Schmid, 2001; Lechner and Schmid, 2000). In the case of Blitzin, the games played are stored in personal histories (accessible to everyone) in a common Portable Game Notation format. Figure 2 shows the powerful mixed graphical and text features of Blitzin.

In Figure 2, user “aslak” (an alias) is replaying a game. He has at his disposal, on the right, extra pieces which he may place on the board for analysis purposes. He may also draw on the board with right-mouse-clicks and drags, for expository purposes in individual or group lessons. Another powerful feature of Blitzin may be seen on the lower left of Figure 3: the “Seek Graph”. In the Seek Graph, the various dots are color-coded to segment humans from computers and fast time controls from slower time controls. In addition, the dots are ordered by the rating of the player issuing the challenge. To accept a challenge, aslak need only click on the dot desired. Hovering over the dot with the mouse pops up a balloon help with the issuer’s name, rating, and time control desired. In the upper left of Figure 3, the most recent ICC News Items are displayed. ICC News items are stored in a News database and are referred to often by Helpers and Administrators to answer commonly asked questions.

They contain information about upcoming events and also state ICC policies, for example the intolerance of ICC toward broadcast obscenity. Blitzin also fully supports the key capabilities of communication (chat, messaging), information (directories of services) and transactions (Hagel and Armstrong, 1995).

In summary, the Blitzin client software provides the materials that collaboration requires (Cothrel and Williams, 2000). It provides simple navigation of the ICC virtual space and offers robust support for sociability and domain-specific usability (game play, game replay, lessons, exhibitions), which are two key components of a successful online community (Preece, 2001).

The Economic System of ICC: Chekels

As can be seen in Table 3, the innovation of “chekels” was introduced in March of 1996. Chekels are a monetary token that can be purchased by any member via direct debit of a credit card at a 1:1 ratio with the US Dollar. The ICC software infrastructure is automated to accommodate purchases, balance checks, and offers. The chekels can then be offered to eligible vendors – the logical linkage connections between buyers and sellers in cyberspace foreseen by Mitchell (Mitchell, 1995). Eligibility is defined by ICC as the possession of a real world chess title, such as GM, IM, FM, WGM, or WIM (see Table 2). ICC policy defines this subset of members to be vendors to avoid excess charlatanism. Non-vendors may offer services privately via their personal biography “finger notes” but they are required to state that they are not vendors and to also advertise the online Vendor Directory alongside of their private offering. Thus vendors are segmented and tied to real-world status. The extensive chekel system is in accordance with the literature: as Armstrong and Hagel state, (Armstrong and Hagel, 1995) “The ability to manage the economics
of communities will be important.” Kollock (2000) lists an important design principle of online communities is that it be able to “to exchange objects and services in some sort of economic system.” The segmentation between amateur chekel bidders and professional chekel offerers as a policy decision to limit charlatanism is quite interesting.

**Exploring the ICC World with a Software Robot – Notes on Data Collection**

In February 2001 a group of students at the University of Arizona and the author launched a Java software robot, ‘shadowofaries’, in the ICC environment. This robot is capable of chat (using the ALICE AIML chatbot module, http://www.alicebot.net/main.html) and it also gives lectures at scheduled intervals. During member conversations, the robot will promote a web-based questionnaire (http://louvain.bpa.arizona.edu/servlet/Questions?&username=), which solicits members’ opinions about ICC.

Thus the ‘shadowofaries’ robot is both a participant and an observer in the ICC medium. It contributes to the medium in the form of lectures and chats and it polls the medium at intervals and collects data automatically. Questionnaire respondents’ data is written directly into a relational database to facilitate data analysis; database tables are then exported to the SPSS statistical package. As of March 31, 2001, 36 respondents were acquired; preliminary analysis of the questionnaire data follows.

**Preliminary Data Analysis**

The current (March, 2001) respondent size of n=36 only offers limited analysis. In a Principle Components Factor Analysis of the Likert data (the 35 statements are online at: http://louvain.bpa.arizona.edu/icc/docs/icc_quest.html), one factor was found to account for 26.6% of the variance in a Varimax rotation. This factor had factor loadings from the following variables (corresponding question number, listed in Appendix A, in square brackets). Improve [1] 0.92, ICC_Recommend [34] 0.91, Titled_Interact [35] 0.88, New_People [21] 0.82, Every_Day_Logon [33] 0.75, Don’t Care If Improve [8] –0.69, Time_Loss [32] 0.69, Channel_Community [30] 0.66, and Atmosphere [19] 0.63. The alpha-reliability coefficient for Factor 1 is 0.8225.
Thus the Factor 1 contributory variables describe a group of people who feel strongly they have improved, would recommend ICC to others, feel they have a unique opportunity on ICC to interact with titled players, enjoy meeting new people on ICC, log on every day, would care if they do not improve, yet admit they are logging onto ICC at the expense of tasks in the physical world. They also feel a real sense of community in the channels they are members of, and feel that ICC management maintains a pleasant atmosphere. This camp would fit into the pedagogical dimension depicted in Figure 1. With larger sample size, we will reanalyze the dataset to detect other Factors with high alphas.

**Concluding Remarks**

ICC fulfills the three strategic goals put forth by Cothrel and Williams (2000): firstly, its infrastructure supports Member Development. Trial accounts are popular (currently about 25,000 free weekly trials are in existence), and there are help files available to explain ICC’s value and show the member-only features and content. Secondly, ICC has good Asset Management. It continually builds upon its database of titled player games, and it attracts and retains domain experts (players and computer experts) to chat, give lessons, and compete. Finally, it explicitly addresses Community Relations. It has a solid structure of norms and guidelines and it delegates enforcement of such policies to the volunteer staff. Thus there is online moderation, online facilitation (Helpers designated to coach newcomers), and the promotion of informal social interactions in the various channels. The rich client interface and strong support of both chess-play usability and socially-oriented chat takes ICC a long way from the rudimentary beginnings of online gaming, such as the early offerings of Go, Chess, and Backgammon in the LambdaMOO where Curtis observed “such games so far have little, if anything, to offer over their real-world counterparts, except perhaps a better chance of finding an opponent (Curtis, 1995)”. Now we have a vibrant community populated by the world’s top players; it offers an unparalleled opportunity to watch grandmasters compete, or to play computers of various strengths, take a lesson, play over games from ICC’s internal database, or simply chat and socialize.

Future work will refine the participant/observer robot and do more in-depth statistics as the respondent pool grows. Specialized questionnaires will also be developed to explore the issue of internal ICC Helper and Administrator status motivation. Also we hope to implement chat-based data collection and make the robot into a general-purpose exploratory research tool that will be capable of exploring a wide range of virtual communities.

**References**


