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What's Inside a Successful Virtual Community Business? The Case of the Internet Chess Club

Mark Ginsburg
University of Arizona

Suzanne Weisband
University of Arizona

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Mark Ginsburg
University of Arizona
mginsbur@eller.arizona.edu

Suzanne Weisband
University of Arizona
weisband@eller.arizona.edu

Abstract

This paper considers the human and technical components of the business model of a highly successful subscription-based online gaming community, the Internet Chess Club (ICC). After presenting the history of this enterprise and its properties as a research testbed, we review the actors (owners, regular members, volunteers) and the infrastructure to set the stage for a survey (n = 124) of paid subscribers and volunteers to explore participants' perceptions and their preferred activities inside the community. A principle components factor analysis shows that the respondents can be divided into five subgroups: the Promoters and Community Builders, the Feel-at-Home Comfortable Users, the Addicts, the Socializers, and the Introverted Chess Focus. The success of ICC stems from its support of all of these subgroups, as well as intrinsic factors in its environment that continue to attract volunteers from the regular member corps. Much of ICC's success that we find in this case follows prescriptive advice from prior virtual community literature, such as improving access to large-scale information resources, facilitating economic transactions, and combating information overload. After discussing the results, we provide directions for further work in this area.

A Brief Overview of Virtual Community Business Offerings

Virtual Communities (VCs) offer a tantalizing possibility to businesses: to leverage the ubiquitous reach and range of the Internet to locate and gather birds-of-a-feather interest groups, to provide these groups with convenient visual interface tools supporting asynchronous and synchronous group interaction, and to sit back and watch as the nascent groups bootstrap themselves to viability. Early strategy papers, for example (Armstrong and Hagel 1995) touted the vast potential of this new face a business can present to its customers.

As the Internet matured in the late 1990s and content differentiated, bandwidth also became more plentiful enabling more ambitious VC offerings. VCs expanded from plain text chatrooms and newsgroups to 3-D gaming worlds. At the same time, numerous prescriptive design papers were written to enunciate principles to assist in the design of VC architecture, with varying degrees of business focus. Kollock (Kollock 1996) stressed the importance of trust via persistent VC identities; this trust can facilitate another recommended feature of a VC business, an economic infrastructure that can carry out transactions. The importance of a recognized ID was supported by a recent empirical study on eBay vendors (Resnick, Zeckhauser et al. 2002) . Millen (Millen 2000) and Marshall et al. (Marshall, Shipman et al. 1995) stressed the importance of designing the VC user base's software tools with their needs in mind. Williams and Cothrel (Williams and Cothrel 2000) reiterated that the users should have "a critical mass of functionality" at their disposal and that managers should delegate authority as much as possible down the ranks to the members so that they have discernible power to shape the rules of conduct in the VC. They also mentioned the common sense principles of providing user feedback channels, recruiting actively for new members, and the importance of the equity holders to acknowledge the "discretionary energy" (the volunteerism) of the many participants who spend time and effort to keep the community going with timely help for newcomers, and guidance to help members locate internal and external information assets of interest.

Virtual Community Businesses and Volunteers

The issue of leveraging volunteers is particularly important in VC-based businesses, since the cadre of owners may be quite small yet the Internet reach and range means the VC offering will be global in scope. Volunteers can, for example, provide timely multi-

lingual help or they can assist in more core duties, such as maintaining the infrastructure of an online chat group (Butler, Sproull et al. 2002).

What sorts of members can the owners attract into the volunteer workforce? Prior work shows that volunteerism, to some degree, is "prosocial" – an altruistic desire to do good. On the other hand, there is also some degree of selfish motives --- personal gain via the volunteer activity, be it recognition from superiors, a possible stepping stone toward a promotion, or some other non-altriustic rationale (Murnighan, Kim et al. 1993; Penner and Finkelstein 1998; Snyder and Omoto 2001).

Putting the Design Principles into Practice: Sustainable Revenue Models

Of course, setting forth design principles and actually building and running a successful VC-based business are two separate things entirely. One of the key choices of a nascent VC offering is the identification of the potential revenue streams. Some of the major possibilities are: subscription-based, where members enroll due to the attraction of differentiated content and functionality; ad-hoc based, where visitors can elect at irregular intervals to make a purchase (for example, a pay-per-premium-article news discussion forum), or advertisement-based, where visitors at a VC site, in order to use the functionality, must also view product placements. An example of the latter model is the Yahoo Gaming network. Bughin and Hagel and Bughin and Zeisser (Bughin and Hagel 2000; Bughin and Zeisser 2001) support VC operational performance in a set of limited studies with the caveat that cost-savings is paramount to ensure long-term viability.

Based on general prescriptive principles, the business owners must plan a VC offering which:

- offers dynamic content and functionality that will attract new members.
- once new members are acquired, provides enough attractions in the initial subscription period to have a substantial rate of re-subscription.
- offers delegation of governance to further the sense of self-construction of the community's members.
- offers segmentation of the communication channels to combat information overload (Jones and Rafaeli 2000); what this means in practice is that the members are offered a chance to self-elect themselves into sub-groups and to "tune in" to various sub-group channels.
- provides persistent IDs to further a sense of belonging (Blanchard and Markus 2002) (Kollock 1996); this belonging adds to the switching cost of leaving this VC and joining a competitor, thus assisting in member retention.
- provides the infrastructure to conduct economic transactions.
- acknowledges and rewards volunteers.

The research gap thus far has been between prescriptive papers and general case studies on one side, and limited VC marketing studies on the other, to address the linkages between VC success, VC design principles, and the nature and deployment of the VC volunteer workforce.

To bridge this gap, we conduct an in-depth survey on the Internet Chess Club (ICC), a highly successful subscription-based VC chess and related-game enterprise that currently has over 21,000 paid members and over 5,000 trial members with a low daily operational overhead. The ICC offers a very convenient experimental platform for the researcher to gather data using conventional survey-based means and also via automated means, using an embedded software agent. We have taken advantage of this platform in prior work (Ginsburg 2001; Ginsburg and Weisband 2002); the current paper extends this work with an expanded and updated sample size and new analyses of member and volunteer attitudes. After providing a brief history of the ICC, we describe its key properties and its organizational structure (owners and volunteers). This sets the stage for our survey (n = 124) that canvassed regular member and volunteer opinions. After presenting the results from this survey, we conclude with directions for future work.

A Short History of the Internet Chess Club

In 1993 and 1994, Daniel Sleator, a Professor of Computer Science at Carnegie Mellon University, was an administrator and systems programmer on a public code base, 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, and named the new offering Internet Chess Club (ICC). 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. The ICC now boasts more than 21,000 paid members, with an additional 25,000 free week-long trial accounts (a percentage of which it hopes to convert to paid status). In addition, about 5,000 free accounts are accorded the computer programs and titled players such as Grandmasters. Some of ICC's key fairness features are a way to avoid penalizing players with slower network connections ("timestamp") and various detection techniques to alert if a player is unfairly consulting a chess-playing program during what is meant to be a non-computer game.

In 2002, the ICC acquired Chess.FM, an Internet Radio Talk Show. This expansion into a new medium means that chess commentary broadcasts, via the Chess.FM website, can be followed while ICC members analyze the game on a visual interface. We discuss this interface in Section 2.1. In addition, ICC members can be recruited by Chess.FM moderators to perform ad-hoc telephone interviews on the air.

The Interface and Communication Pathways of ICC

ICC makes use of a rich visual client to play and study chess, to chat, to take lessons, and to seek individual games and tournaments. Figure 1 shows a screenshot of the BLITZIN software client, which is freely downloadable from **http://www.chessclub.com/**. In Figure 1, notice our research chatbot, "Aslak" presenting a game lecture in one window and talking to the member in another; proposing the user visit a webpage and fill out a survey form. This solicitation technique is discussed in our discussion on the survey methodology in Section 3.1.

Members logged on to ICC have a set of synchronous and asynchronous communication choices. They can communicate by private tells to one another, or by shouts (broadcast messages) or by directed comments to 'channels'. They can also leave asynchronous messages to individual members or to a general 'suggestion' account. Guests (unregistered players) can logon but they can only communicate to the Help Channel.

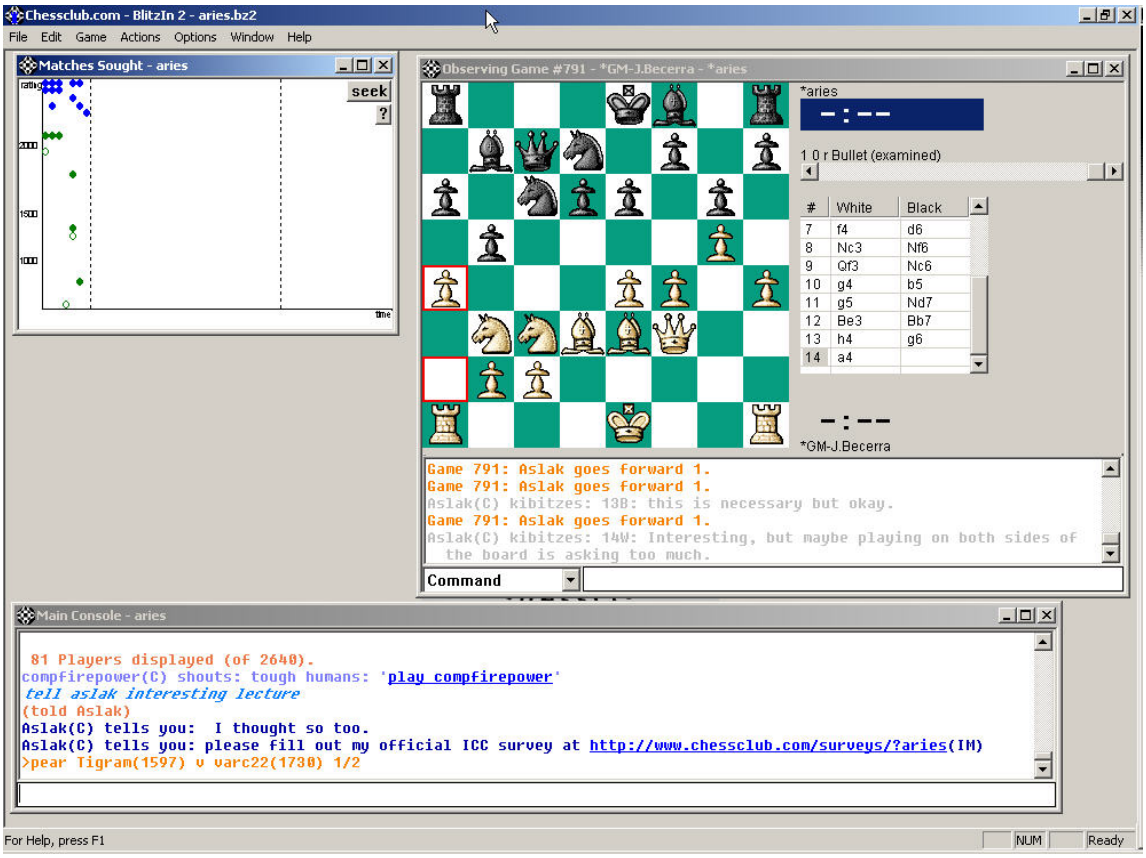

Figure 1. ICC BLITZIN Client Screenshot 1

According to Jones and Rafaeli (2001), communication segmentation strategies are critical to combat information overload. 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. 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. Channels are analogous to tuning into a certain radio frequency; some are moderated, and others are not.

Related to Channels are ICC "Groups", introduced in January 2001. ICC delegates authority from owners to administrators, to police the groups, and from the administrators to the group-operators, for further sub-policing. This notion of distributed delegation is consistent with Williams and Cothrel (2000). Groups and Channels help segment the population and lower the "background chatter" to help members focus on chats and announcements of interest, consistent with (Jones and Rafaeli 2000).

ICC Actors: Grandmasters, Volunteers and the Rest

Both implicit and explicit volunteers contribute effort to ICC. Implicit volunteers are those individuals whose efforts are not usually tied to particular individuals – i.e., they are not known in advance by ICC members. Explicit volunteers are those individuals who are known by ICC members, and whose efforts are tied directly to them.

Let's consider first the player population. The ICC has the fortuitous circumstance, from the point of view of the researcher, of having real world accomplishments correlated with virtual identities. The World Chess Federation awards titles at annual real-world congresses to recognize chess accomplishments. Titled chess players – male Grandmasters (GM) and International Masters (IM), and female Grandmasters (WGM) and International Masters (WIM) – are the first type of implicit ICC volunteer. They form a core set of vendors who can make use of the ICC economic system by offering lessons or simultaneous exhibitions for a fee. In addition, having a large proportion of the real-world titled players as members is a good promotional benefit that the ICC can use for marketing purposes. As of February 2002, ICC has 318 Grandmaster members, (out of a real world total of 786, an impressive 60%, and 646 International Master members out of a real world total of 2,185, or 27%). All of the chess games played by the titled players flow directly into an internal ICC games database. The database is a structured information archive of high value to the members who wish to improve their game by allowing members to search the results of games and place them in their private databases for replay and study. There are currently over 1.3 million chess games in this database and it, coupled with the BLITZIN visual tool, serves the players' community of practice (Millen 2000; Millen, Fontaine et al. 2002) well. Because of their importance to the core activity of the community, and to encourage their use of the ICC software and database, ICC offers free membership to titled players.

Explicit volunteers help ICC members interested in playing and learning chess. "Helpers" are identified with an "H" suffix after their ICC identity, or "handle". Thus the suffix after the handle is a form of artificial status. Members must take a test, which is administered by a testing software agent, to become a Helper. They are not paid, however. Their reward is a private chat channel, Channel 100, where they can discuss ICC issues and socialize among themselves, much like the About.com "virtual water cooler" (Williams and Cothrel, 2000). The members' questions to the Helpers, and their responses, occur in the main channel, Channel 1. "Administrators" or "Admins" are also able to respond to Channel 1 questions. Admins also have a higher degree of authority and status than the Helpers. For example, Admins can look up members' data such as their email address, their current dues status, and their most recent IP numbers in their logon history. They can ban people who are behaving in their view offensively from the server, or, in extreme cases, they can delete accounts permanently. They can also create complimentary accounts for Grandmasters and serve in addition as watchful guardians over the group of relatively less experienced Helpers. Most of the Admins are also unpaid volunteers, however some of them are paid consultants, and a few of them are equity holders in the privately held ICC.

Another type of explicit volunteer is the Manager. The Manager may also be an Admin or a Helper, but this is not required. The Manager fulfills the important role of running chess tournaments on demand. So, while Helpers and Admins assist and socialize new ICC members to the rules, norms and obligations of the community, Managers assist by creating the analog of a real-world chess tournament in this virtual environment.

In sum, ICC makes use of a volunteer base to provide around-the-clock service, seven days a week. A volunteer recruitment policy states that it seeks new Administrators to address gaps in its language skill set. Thus volunteer groups are recruited from around the world to serve its global community of members. 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 2000). The ICC relies on volunteers to assist in member acquisition and retention. While there is no financial incentive to volunteer, there is status, and the opportunity to move up the volunteer chain.

The Contributed Software

ICC has the unusual property that any member (regular paying member or volunteer) can introduce software into the ICC environment to extend its range of offerings. Implicit ICC volunteer include software programmers who "donate" their software features for use by its members. These software programmers spend considerable time and effort creating innovative software features and providing them, free of charge, to the ICC community. For example, new software has been introduced to support chess variants, such as shuffle chess (where the pieces start in random placements on the back rank) or Kriegspiel (where the players cannot see where the opponent's pieces are, and the software mediator verifies the legal moves on each turn and announces check and checkmate). This is an interesting avenue for members to have a say in the future evolution of the ICC. If a contribution is deemed interesting by management, it may be adopted for continued internal development. Researchers can also introduce software to pursue various agendas; an example of economic research in the making is the example of the software has been introduced to support pari-mutuel betting on ICC chess tournaments.

ICC Member Attitudes and Activities Survey

Methodology

We conducted a web-based survey in the time frame January 2003 to March 2003. To conduct the online survey, we used research assistants who logged on to ICC and we also made use of a software chatbot which functions in the ICC environment. This chatbot has been described previously (Ginsburg 2001; Ginsburg and Weisband 2002); it is a participant and observer in this community. It can give chess lectures at prearranged intervals (reading from a canned script), or it can chat in a human like manner. The interactive portion of the ICC Robot is built around program "D", a Java 2 implementation of the ALICE platform written by Jon Baer. Richard S. Wallace is the ALICE project originator; "an open source project dedicated to promoting the usefulness of networked artificial intelligence and natural language processing" (**http://www.alicebot.org**).

To promote our survey, we modified this chat interaction to have the chatbot, at intervals, solicit members to go to the Web questionnaire. This interval is defined, arbitrarily, as some percentage of the number of chats sent outbound by the chatbot. In our case, we set this percentage to 10%. Thus, in 10% of the chats, the user is solicited. We pick up the member ID and suffix that at the end of the survey URL. Thus the member's ID is passed through to the servlet that conducts the survey. We use the member ID as a data validation check (to make sure that volunteers really are volunteers, etc.). We then anonymize the data and key off of the IP number. From the ICC member's perspective while using BLITZIN, the chat modification is shown in Figure 2.

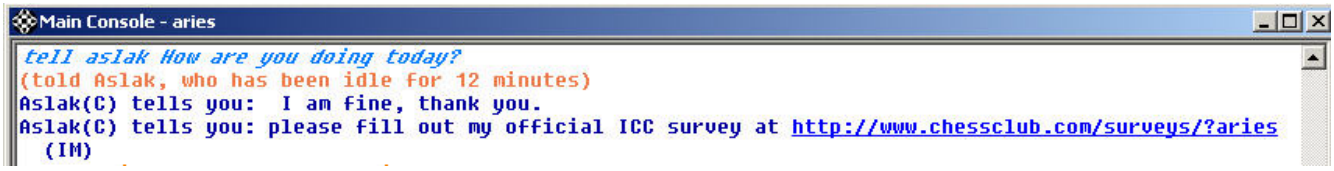

Figure 2. Chatbot Modifications to Solicit Members to Participate in the Survey

Figure 2 only shows a small subset of what a typical session looks like. Figure 3 has the robot participating with a lecture and in the chat; it also observes by collecting user data at scheduled intervals. The overall data collection architecture, which is component-based, is shown in Figure 3.

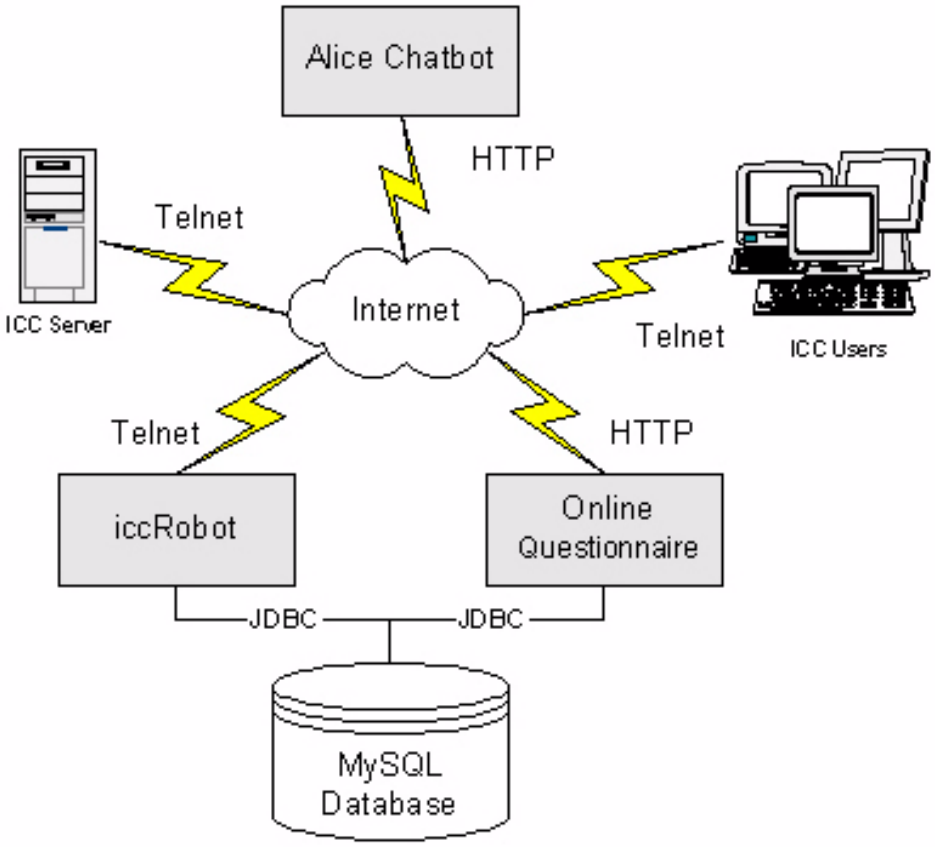

Figure 3. The System Components Involved in Promoting and Administering the Survey

As Figure 3 shows, the researcher logs the chatbot on the ICC server via a Telnet connection; the management by arrangement with the researchers has given the chatbot a Computer account (when members issue the "finger" command to learn about this account, its online biography states it is a computer and not a human). Once the chatbot is logged on, it conducts scheduled lectures and is able to simultaneously conduct ad-hoc chats with members. Some of the chat promotes the survey which is on the Web as shown in Figure 2, with the member's ID as a parameter. Referring to Figure 3, the survey subsystem is composed of a Java servlet and a MySQL database. To increase the questionnaire's legitimacy and give it an "official" flavour to the respondents, ICC management helped us integrate the online Questionnaire into the official ICC **http://www.chessclub.com** website; this was done by couching our Questionnaire into a frame on their site. The survey is viewable at **http://www.chessclub.com/surveys?xy** where "xy" an arbitrary handle parameter for demonstration purposes. The questionnaire consists of basic demographic questions and set of attitudinal statements on a Likert 1 to 7 scale. There is also a section meant only for the volunteers. We compare the handle parameter passed during response to the data in this section and discard non-volunteer responses.

The net result of the combined chatbot and research assistant promotion was 124 respondents, with 22 of those being volunteers (Helpers or Administrators). Section 4 presents the results.

Analysis of Results

Table 1 shows the Principle Components Analysis (using Varimax Rotation) of the ICC Use and Perceived Benefits Survey with n = 124. Five factors were identified.

Table 1. Results of Factor Analysis of ICC Use and Perceived Benefits

Variables	F1 Promoters and Community Builders	F2 Feel at Home [Comfortable Users]	F3 Addicts	F4 Socializers	F5 Chess Focus
I support real world community associated with chess	**0.734**	.232	-.159	-.0173	.204
I support ICC community	**.732**	.010	.125	.007	.248
I help other people	**.724**	.006	.229	.177	.187
I build relationships with ICC members	**0.711**	.202	.456	.198	.011
I often provide feedback to improve ICC	**0.692**	-.106	-.046	-.160	.037
I promote ICC to people I know	**0.676**	.006	-.180	-.016	.231
Career advancement/professional visibility	**.610**	.135	.042	.029	.098
Real sense of community in channels I belong to	**0.605**	-.084	-.068	-.092	-.112
Meet people and make friends	**0.601**	-.046	.436	.387	-.171
I am tempted to participate as a helper	**0.588**	-.073	.193	-.060	.093
I've met people on ICC that I consider to be good friends now	**0.586**	-.188	.068	-.063	-.135
Become known to ICC members	**0.582**	.156	.483	.228	.025
Knowing member determines how much I trust in what they post	-0.013	**.809**	.013	.160	-.141
I would recommend ICC to real-world chess players	0.071	**.781**	.126	.131	.174
ICC is an easy virtual space to navigate	0.165	**.672**	-.129	.174	.008
My mood improves after I log in	-0.084	**.655**	.097	-.031	-.123
I don't care if I improve in chess or not	0.316	**-.636**	.034	-.141	.139
nothing wrong with people meeting first on ICC and then dating in real life	0.096	**.598**	-.169	.298	-.327
I've improved in chess since joining	0.048	**.595**	.168	-.153	.166
I plan to renew membership	0.001	**.584**	-.143	-.166	.150
I feel at home when I log on to ICC	0.278	**.576**	.155	-.149	.082
I log on almost every day	0.168	-.032	**.666**	-.140	.003
I have fun on ICC	-0.006	-.007	**.624**	.007	.217
I am addicted to ICC	0.037	.260	**.593**	-.272	-.194
Nonchess channels are entertaining	.322	-.006	-.036	**.624**	-.059
ICC does not interfere with real world relationships	0.124	.084	.198	**.606**	.448
Guests are annoying	.151	-.111	.119	**-.534**	.087
People interfere with enjoyment	.407	-.115	.096	**-.475**	.046
ICC help atmosphere policy works well	0.197	.115	-.016	.095	**.700**
Would not want to socialize	0.022	-.146	.049	-.114	**.521**
Learn about chess	.083	.301	.202	-.402	**.447**

Discussion of Results

Factor 1, labeled "Promoters and Community Builders", demonstrate a set of personality traits consistent with volunteerism: these include support of the ICC and real-world chess communities, the importance of helping other people, the importance placed on

relationships with other ICC members, and the willingness to give feedback to improve ICC. This type of member is interested in proactively shaping the internal norms and rules of behavior (Kollock, 1996). The explicit question "I am tempted to participate as a helper" is included in this Factor as well. Factor 1 also includes the statements "real sense of community in the channels I belong to", "I meet people and make friends on ICC", "I have met people on ICC that are good friends now", and the attitude that it is important to "become known to ICC members". Thus self-promoters are lumped in this Factor as are the altruistic community promoters. This category shows a high degree of direct communication and interaction (Hummel and Lechner 2002). This analysis, by lumping the explicit "I am tempted to participate as a helper" with more general attitude questions, sheds light on a general set of volunteer personality traits. Past research has noted the importance of personality traits in the decision to volunteer (Markus, Manville et al., 2000) (Penner and Finkelstein, 1998); separate analysis is needed to pursue the consequences of volunteering once the decision has been made. ICC is receiving payoff here from acknowledging its existing corps of volunteers and providing abundant examples how social and technical contributions find their way into its daily operation.

Factor 2 is labeled "Feel at Home [Comfortable Users]". The type of member described here finds "ICC an easy virtual place to navigate"; thus the visual tools are doing their job (Millen and Patterson 2002). Also included are "knowing the member determines trust in their post", "I would recommend ICC to real world chess players", "My mood improves after I log on", "I care if I improve", "there's nothing wrong with people meeting on ICC first and then dating in real life", "I've improved in chess since joining", "I plan to renew my membership", and "I feel at home when I log on to ICC". Thus we see members who are positive about ICC and who derive both chess-related benefit and intangible mood-related benefit. This is a payoff from the full-featured BLITZIN client, the persistent handles fomenting trust, and the wide range of communication support for personal and larger group interaction.

Factor 3 describes the "addicts". These people "log on almost every day", "have fun on ICC", and agree with the subjective assessment "I am addicted to ICC". This factor did not cross load with the "I care if I improve at chess" statement so we can infer this type of member has intangible needs met during the logon sessions and does not place importance on the primary offering of the server, chess study and play. Like-minded individuals can band together without fear of offense to the more serious players thanks to the communications segmentation strategies. Further analysis is indicated to study the logon times (durations and patterns, e.g. night-time vs. daytime, weekend vs. weekday) of this type of member compared to the others.

Factor 4 is the "Socializer" member type. Here, "non-chess channels are entertaining" (recall that ICC communication is segmented; members self-elect channel membership), "ICC does not interfere with real-world relationships," "Guests are not annoying", and "People who logon to ICC do not interfere with my enjoyment of ICC." Many guests arrive throughout the day and members of this type enjoy the chaotic interplay of the new arrivals and the established population. These people are not interested in chess play and study and simply follow, and add to, the general "noise level" of the various ICC communication pathways. ICC is receiving benefit here from permitting Guest and Trial Logins, deferring revenue by providing a limited sample of what ICC has to offer. The socializers value the constant influx of newcomers.

Factor 5, the "Chess Focus" group, includes attitudes one would expect from members who want to concentrate on the game and not be disturbed by off-topic broadcast shouts. These people agree that the ICC "atmosphere" policy works well; a policy meant to curb offensive behavior. There is agreement with "I would not want to socialize with chess players in real life." Thus, Factor 5 is the antithesis of Factor 4, the "Socializers". For this member type, the ICC with its segmented and policed channels, and its numerous tools to support chess play and improvement, is a safe haven from the disturbances of the socialites. This is a good example of a virtual community offering advantages over its real-world counterpart. It also indicates that ICC is receiving payoff from its economic infrastructure, which supports professional lessons and exhibitions, and its large-scale player database, which can be converted to a standard format and interoperate with other Internet chess data resources.

Conclusion

This study has shown that the ICC, with its multifaceted communication strategies, rich visual interface, and support for explicit and implicit volunteerism, is able to provide value to each of the member categories we identified in the Principle Components analysis. Our discussion also shows that ICC is a rich testbed for experimental work. It supports multiple modes of data collection and is an open environment for methodological software implementation. The classic virtual community considerations of trust, reputation, identity, and economic infrastructure are all apparent in this environment and the linkage between virtual chess ratings and real-world chess ratings offers an unusual tie to strengthen findings regarding chess play in this environment. We are in the process currently of studying ICC volunteers more closely, to understand more fully their decision to become a volunteer, and

the consequences of that decision. We are also working with ICC management to construct a related study which will focus specifically on member retention.

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