

## ENABLING E-COMMERCE GROWTH THROUGH THE SOCIAL CONSTRUCTION OF A VIRTUAL COMMUNITY'S CULTURE

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### ABSTRACT

This research paper investigates the elements that encouraged people to visit and actively participate in a virtual community, and eventually leading its guests to purchase from its E-Commerce store. In essence, the E-Commerce store acted as a critical symbiont to the economic survival of the virtual community. In order to establish its uniqueness, the virtual community under study introduced several innovations to its web interface in order to improve human-computer interaction. It also created its own process of interaction and incentive to attract more members. The resulting effects not only made the virtual community unique from other communities, but that it actually created its own emergent culture. Consequentially, the social construction of the community led to the creation of a large and dynamic knowledge repository, supporting the evolution of its emergent culture. Evidences seem to show that the socially-constructed forces driving the virtual community's success are shaping social awareness to support its symbiont, the E-commerce store, for its own long-term economic survival.

### 1. Background

Culture, as defined in the dictionary (Merriam Webster 2002), is "the customary beliefs, social forms, and material traits of a racial, religious, or social group. Culture is also the integrated pattern of human knowledge, belief, and behavior that depends upon man's capacity for learning and transmitting knowledge to succeeding generations". In connection with this definition of culture, a virtual community, which forms a social group with certain beliefs, social forms (language, lifestyle, norms) and traits, creates an emergent culture amongst its members.

The underlying technology and systems infrastructure, an interactive bulletin board system supporting such virtual community, plays a pivotal role in facilitating the process of creating and supporting such culture. Based on the seminal works of Vygotsky (Vygotsky, Vygotsky, and John-Steiner 1978, Vygotsky, Vygotskii, and Kozulin 1986, Lefrancois 1992), the factors that separate humans from other animals in our development are our use of tools, speech, and symbols, and as a result of these, we create culture. The virtual community's system interface, language, symbols of communication, and its utilization of rich media are *tools, symbols, and forms of speech* that facilitate the emergence of a unique culture. Sumi and Mase (2002) demonstrated how systems and their visual interface could be used to "create shared community awareness" and improve human communication.

The virtual community under study is a fitness community, and the cultural aspect of this study rests on a multi-racial social group with a common denominator – similar beliefs, interest, and lifestyle. This is called "community of mind" by Rothaermel & Sugiyama (2001) and Tonnie's (1912) due to the members' common intellectual interest. Members of this particular community under study strongly believe in adopting a lifestyle of health and fitness and adhering to the rigid disciplines of bodybuilding.

According to Health and Nutrition Systems International Inc. (2002), "In an industry study by the Nutrition Business Journal (NBJ), sales of nutrition supplements was \$13.9 billion in 1998 and ... are projected to be \$49 billion by the year 2010." Considering the geometric growth of the multi-billion dollar nutrition supplement industry and the health and fitness industry in the United States, there has been a fast growing interest in the exchange of knowledge among the users of nutritional supplements. In addition, the innovations in machine equipment and physical training techniques evolving in the health and fitness industry are of great interests to the same group using these nutritional supplements.

### 2. A Profile of the Virtual Community

The Elite Fitness virtual community was established in early 1999 using an interactive bulletin board as its backbone systems infrastructure. It existed with an E-commerce storefront called Mass Quantities that was selling health and sports supplements, such as protein drinks, diet supplements, and vitamins. The vision of this virtual

community was for health and fitness enthusiasts around the world to be able to find useful knowledge and advice, and to interactively discuss issues of health, fitness and bodybuilding. The community has attracted people from different geographic locations – United States, Canada, Europe and Asia.

Through member contribution and interaction, the virtual community gradually built a unique “knowledge-base” combining the knowledge domains of nutrition science, biochemistry, human anatomy, kinesiology, scientific training methods for athletes, and the proper use of athletic tools and gym equipment. In brief, it is a social group that characteristically forms a “fitness culture”, and has an extensive array of member-generated knowledge to support the existence and perpetuation of such culture. In addition to its group uniqueness, members also expect other members in this social group to have more distinct physical or bodily traits, generally characterized by a low amount of body fat, above-average physical strength, more muscles mass, body aesthetics and symmetry than an average individual. Members experience peer pressure to post their pictures so that other members can assess their level of fitness or shape. To communicate their unique interest, they have also created their own language and graphic forms of expression. In this manner, it is a social group with its own set of forms, traits, and beliefs.

Hagel and Armstrong (1997) classified virtual communities into several categories. Elite Fitness site matches the definition of the *Topical community* as defined by Hagel and Armstrong. Under their definition, “topical communities center on topics of interest (excluding geography, gender, or life stage) and include communities focused on hobbies and pastimes such as painting, music, or gardening ...”

The unique cultural dimensions that glued this virtual community together rest on the spirit of dedicated fitness lifestyle and strict bodybuilding discipline. The reason why fitness and bodybuilding enthusiasts from all over the world joined this community was because they could not easily find the same level of knowledge and peer support in their own local communities or ethnic groups. The driving force behind this community dwells on the notion that people with the same interest or hobby may not necessarily find their peers in the same geographic community or ethnic group but in virtual communities existing on the Internet.

### 3. Theoretical Background and Research Contribution

Hagel and Armstrong illustrated the dynamics of virtual communities and identified certain elements or factors that can lead to the community's success and continued evolution (see Figures 1 and 2). In their model, “content attractiveness” and “member loyalty” are the key factors shaping the success of the virtual community.

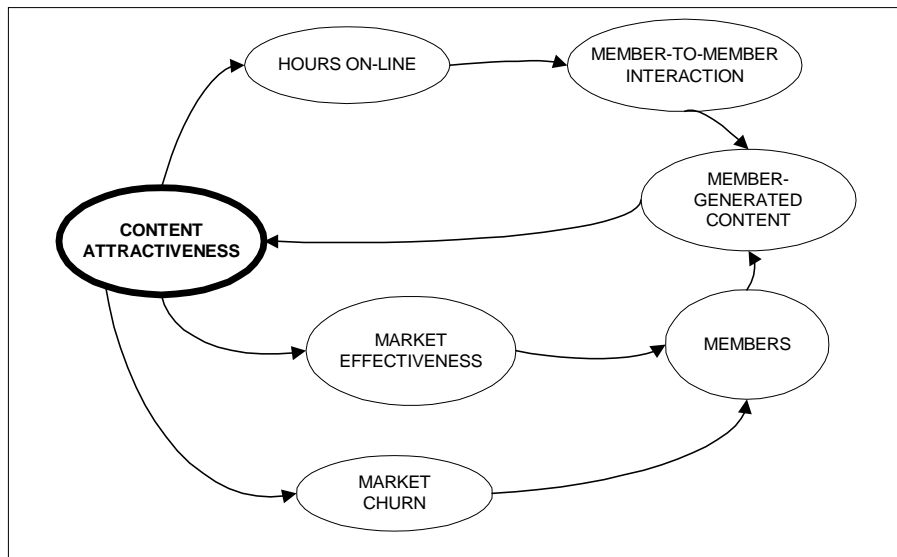


Figure 1. Content attractiveness affecting market effectiveness and attracting members (Hagel and Armstrong, 1997)

The importance of this research is to continue the discourse of Hagel and Armstrong's seminal work on virtual communities. First, this study attempts to evaluate some of their models (as illustrated in Figures 1 and 2) by testing them with real world data, and benchmarking the extent of influence of the factors they identified as vital to the survival of virtual communities (i.e. content, loyalty). Second, Hagel and Armstrong only focused on the economic returns of setting up a virtual community. They called their models as “Dynamic Revenue Models” when they discussed the “new economics of virtual communities” in their research. They did not touch on the rich cultural

dimension that is created from the dynamics of the community's interaction and how that affects its economic survival.

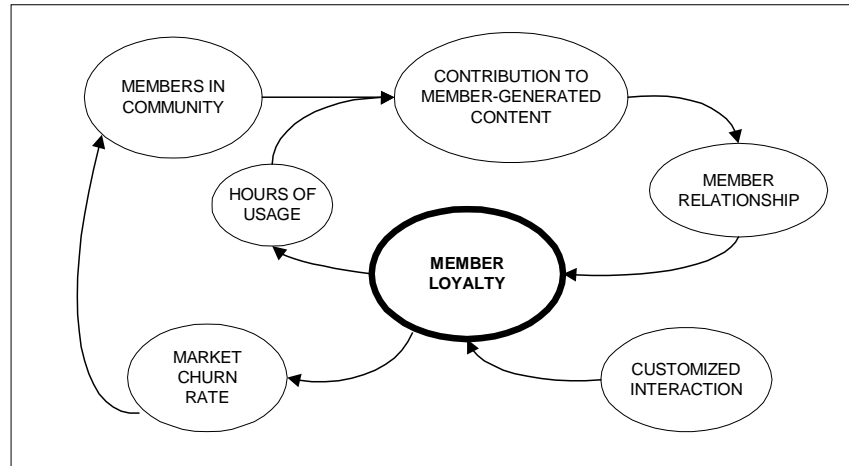


Figure 2. Member loyalty reinforced by member relationship and customized interaction (Hagel and Armstrong)

Although the socio-cultural dimension was never emphasized in Hagel and Armstrong economic theories of virtual communities, we contend that the “underlying links” between the factors described in their model (i.e. member relationship, customized interaction) are integral to the social construction of an emergent culture perpetuating the existence of such community. We intend to make these “underlying links” more explicit and show how they contribute to the construction and strengthening of the virtual community. Third, after testing Hagel and Armstrong’s theory with data and determining the underlying influences contributing to the survival of a virtual community, the final contribution of this research will be on extending their economic theory on virtual communities to include a “socio-cultural perspective” in the dynamics of their model. This should expand the literature showing how socio-cultural forces support the economics of virtual communities.

#### 4. Methodology

First, we needed to find a suitable virtual community to study and then measure its success. Factors that we deemed important were: (1) active member involvement on a daily basis, (2) the amount of member-contributed content or “knowledge-base” that the community has, and (3) total number of registered members. The Elite Fitness virtual community seems to fit these criteria (Refer to survey results in Section 5).

Second, we needed to get a good feel of the community’s culture. The best way to do this was to join the virtual community and be a part of its daily interaction and chat activities. We joined two different virtual communities to provide comparative analyses of their features. Anthropologists and anthropological linguists describe this methodology as “immersion” (Peacock 2002; Genesee 1987). Immersion is the process of being involved in the day-to-day activities of a social, cultural, or racial group but not in a superficial manner as in “being a tourist in an artificial surrounding”, but that of “being a native to the group’s natural surrounding”. The researcher’s involvement with the virtual community started in April 2001 until June 2002. In the process, information and graphic artifacts were captured to determine patterns and uniqueness of this emergent culture.

Third, to get data, we posted several online surveys for Elite Fitness members to answer, and we also picked up some of the online surveys posted by other members. From a researcher’s perspective, using the Elite Fitness system to gather data was a great advantage because registered members can create and post a survey. To add credibility to the survey, each member was only allowed to vote once. This feature prevents members from double voting and creating a highly biased survey result. To add richness to the survey results, members can always include descriptive comments in response to the survey questions, which form part of the qualitative data for this paper. The members’ comments were useful to support the quantitative data that the survey questions have produced. The survey questions were prepared with the model of Hagel and Armstrong in mind. In addition to their model, we also looked at the socio-cultural forces at play in the virtual communities that were enabled by the features of the system. As technology is a socially-constructed force, it can likewise influence the social construction of a group or culture. Unique features of the Elite Fitness system, which will be discussed in Section 5, provided innovations in terms of interactivity, incentives, and graphic forms of expressions that enhanced the richness of the social interaction within the community.

## 5. Benchmarking a Virtual Community's Success: Survey and Data Collection Results

### 5.1. Membership and Content Generation

Elite usually has an average of 250 active members chatting, reading, and posting messages at any given time from 8 a.m. – 1 a.m. daily. This is significantly higher than other fitness communities. To show a comparison, Muscle Magazine (another fitness-oriented virtual community) has an average of 80 active members posting/reading messages within the same time period (Figure 3). There were times when member participation was unusually high. Elite registered 1,085 members as the highest number of members simultaneously present online at one time (December 20, 2001), while its competitor, Muscle Magazine, had at most 273 members present at one time (December 26, 2001). Based on research observation of daily site visits over 10 months, there were usually three times more members in Elite Fitness than in Muscle Magazine, at any given point in time (Figure 3). Elite also had more than 1 million posted messages (member-contributed content) compared to Muscle Magazine, which only registered roughly 376,000 posted messages (Figure 4).



Figure 3. An instance comparing Elite Fitness (upper box) and Muscle Magazine's (lower box) daily active member participation.

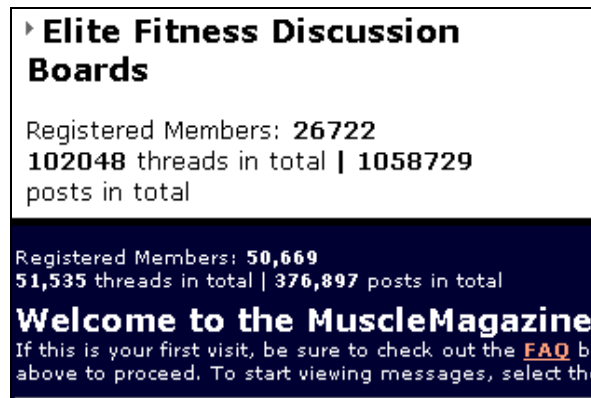


Figure 4. Member-generated content registered more than 1 million posts in Elite Fitness (upper box) compared to Muscle Magazine's 376,897 posts (lower box) in February 2002

Muscle Magazine and Elite Fitness have 50,669 and 26,722 registered members, respectively. While Muscle Magazine has more registered members, this does not reflect member activity. The more significant figures to benchmark are those that reflect the level of activity in the virtual community. And this is seen in - (1) the daily number of active members and (2) the number of posts (posted messages) and discussions (threads) on the boards.

It is interesting to note that while Muscle Magazine had registered more than 50,000 members, Elite only had around 27,000 registered members (Figure 4). However, Elite Fitness had approximately three times more active member participation on a daily basis, and had around three times more posted messages. This indicated that Muscle Magazine was not able to encourage member-contribution and daily participation as Elite had done. The Elite Fitness system and community clearly provided members with enough incentive to generate content, discussion, and participation. How Elite did it will be discussed and analyzed in the succeeding sections.

Table 1 - Comparing Two Virtual Communities

	Elite Fitness	Muscle Magazine
Registered Members	26,000+	50,000+
Daily Active Members	250	80
Messages Posted	1,000,000+	376,000+
Discussion Threads	102,000+	51,000+

5.2. The Elite Culture

5.2.1. Elite’s Policy: Providing a Liberal Socio-cultural Environment

The first virtual community that we joined was Muscle Magazine. As days went by, we found out that there was an atmosphere of censorship imposed on member-generated content. Initially, we believed that this was to remove harsh or obnoxious language from the community. However, we found out that the system would automatically not display names of online merchants that were considered as competitors of Muscle Magazine. Members who asked other members if certain online merchants selling nutritional supplements were credible or efficient in delivering orders were disappointed because the system automatically censored the competitors’ names. In online discussion boards like this, there are moderators assigned to manage content and certain discussions. When there was a debate between two members (a new and an old one), certain moderators became biased and took sides because they knew older members. The atmosphere was not necessarily pleasant for new members. Oftentimes, new members would comment, “Just because we are new to this community does not mean we know less about nutritional supplements”. Moderators often edited member-generated content to include lines of advertising for their online site (Fitsaver.com) – see Figure 5. More so, the moderators would place URL links on a word like “protein” and linked that to a certain protein product in their E-Commerce store. The idea that someone else edited member content contribution was not appealing to several members.

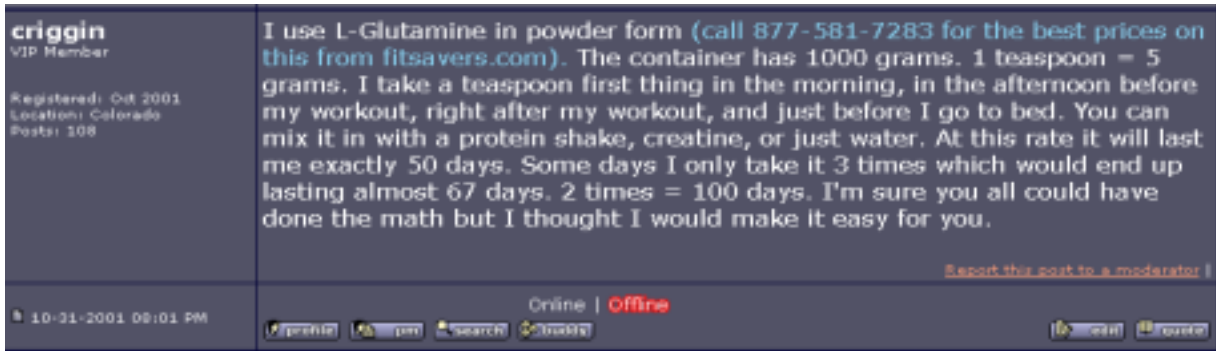


Figure 5. Muscle Magazine inserts advertisement of their E-Commerce shop (fitsaver.com) in member-generated content

We then proceeded to try the Elite Fitness community and compared the environment to that of Muscle Magazine. What we discovered was that the Elite Fitness discussion board did not have the same atmosphere of censorship as Muscle Magazine had imposed on its members. The proprietor of Elite Fitness was even patient enough to tolerate criticisms and harsh language from members. The proprietor, even if it was to the detriment of his E-Commerce store, did not censor content when members discussed other online merchants selling the same nutritional supplements that his store (Massquantities.com) was selling (i.e. protein drinks).

Figure 6 shows a discussion board sponsored by Massquantities.com (Elite’s E-Commerce store), but members were free to discuss other competitors (massnutrition.com, proteinfactory.com, dspnutrition.com). This gave Elite’s member-generated content more credibility compared to other virtual communities. In this manner, Elite Fitness succeeded in projecting a democratic and liberal culture that members enjoyed.

Censorship was only exercised when messages personally attacked the proprietor or was extremely vulgar in contents, and when members requested them to be taken down. However, compared to Muscle Magazine and other fitness boards, Elite Fitness was very light on censorship, based on our observation. Elite Fitness was believable in showing that it respected the opinions of its members. From our perspective, this was one of the reasons why members were willing to contribute their ideas and opinions to the content of Elite.



Figure 6. Elite Fitness welcomed discussions that advertised competitors



Figure 7. Freedom of speech received some votes

Figure 7 was an initial survey showing that freedom of speech was something members enjoyed having. Those that voted "others" were referring to "content" that made them laugh or were alluding to the insights they obtained from the posted information. The graphic icons, which are commonly known as "smilies", and the ability to post pictures did not come up as critical favorites, even though they were heavily used by 70% - 80% of the members. The reason was the limitation of the survey allowing only one vote for one of the options presented. People opted to vote for "less censorship" and others (content).

#### 5.2.2. How System Shapes the Social Forms and Norms: Incentive to Generate Content

The Elite Fitness has system features that actually helped shape "social forms and norms". Like living in a society with social forms and norms that benchmark a citizen's contribution to the well-being or detriment of the society, virtual communities can also have their own socio-cultural forms and incentives that members live up to.

There were social incentives built into the Elite Fitness system that benchmarked the "good standing" of a member in the community. The more a member contributed content (counted by the number of messages posted),



the higher that member's social status became. However, content volume was not the only way to benchmark member contribution, content quality was also measured (see discussions below). Lastly, there was a distinction between paying members and non-paying members. These incentives were purported to earn a "good citizen" status in the community, and make that known to all members.

Although it may seem trivial to those who are not members of the community, the 'status ratings' did mean a lot to several members especially since there was shared community awareness about such ratings. The Elite system used graphic symbols to convey member's social rating or position and make others fully aware of that through the system. Going back to Sumi and Mase's research work, the systems interface can facilitate shared community awareness. In addition, Rheingold (1993) stated that, "people in virtual communities do just about everything people do in real life, but we leave our bodies behind". So, as in any physical community, members crave for popularity. Several members put a good amount of time and effort in doing their own research and in contributing content/knowledge for recognition. There are however some members who are just after notoriety or trying to be distinct from other members in some way.

The rating comes in symbols (Refer to Figure 8):

*Stars and Name Rank.* The number of stars and the name rank below a member's alias measure the quantity of his content contribution. In figure 8, we can see stars and the number of posts. The stars measure the content contribution. Fours stars are obviously higher than three stars. So, a member with four stars is ranked "Olympian" while the one with three stars is ranked "Elite Bodybuilder". Olympians have a higher rank than Elite Bodybuilders.

*Karma.* The amount of karma measures the quality of a member's contribution. Members can add good or bad karma to other members depending on the knowledge and insight they contribute to the discussion. Karma is how members are rated for their help and contribution to the knowledge of other members. In figure 8, the beveled squares above the stars represent the karma level of a member. Clicking on the beveled square brings out a pop-up window showing the amount of good karma a member has.

*Yellow vs. Blue Star.* Members with yellow stars differ from members with blue stars. Blue star members are paying members, while yellow star members are non-paying members.



Figure 8. Stars and Karma as incentive in the Elite culture

### 5.2.3. Systems Communication and Interactive Tools

*Boards and Threads.* Bulletin board systems are categorically Very Large Scale Communications (VLSC) media (Sack, 2000-2001) since many-to-many conversations take place almost simultaneous in such a system. According to Sack, conversation maps are needed to structure VLSCs. Boards and Threads are 'maps' to help

structure VLSCs. One of the attractions of Elite is how the discussions are structured into specific forum (i.e. diet, supplements, and training). Each forum is a discussion board with its own audience (Figure 9). How discussion boards are structured actually show how member-generated content weaves social groupings and sub-groupings. Discussion threads (Figure 10) are created when members starts a new topic for discussion. This can be in the form of questions (a cry for help), comments (what is good or bad), and suggestions (new products). Paying members were allowed to start discussion threads or post messages in all discussion boards, while non-paying members were not allowed access in some discussion forums.

Forum	Posts	Threads
<b>Elite Fitness</b>		
<b>Diet Discussion Board</b> A forum for anything related to dieting.	30512	4101
<b>Life Extension Board</b> A forum for Longevity, Wellness, Anti-Aging, and Nootropics.	711	113
<b>Power Lifting sponsored by powermagonline.com</b> A forum for anything related to the sport of power lifting. Sponsored by powermagonline.com.	5518	734
<b>Professional and Collegiate Sports Board</b> Martial Arts, Cycling, Boxing, Swimming, Track, NFL, NHL, MLB, NBA, NCAA, FIFA	3084	326
<b>Supplements sponsored by MassQuantities.com</b> A forum for anything related to nutrition and supplementation. Sponsored by MassQuantities.com -- Professional Supplements for the Perfect Physique!	21012	2896
<b>Training Discussion Board</b> A forum for anything related to training and general fitness.	36341	3844
<b>Women's Discussion Board</b> A forum for anything related to fitness and bodybuilding for women.	35675	2882
<b>Elite Fitness En Español</b> Fisiculturismo, Anabolicos, Suplementos Nutricionales, Salud y Vida.	6955	972

Figure 9. Different Discussion Boards

<a href="#">perfect low carb meal</a>	<a href="#">cozmokramer</a>	1	101
<a href="#">meal replacements</a>	<a href="#">arkdave</a>	3	65
<a href="#">Please help with a cutting diet!!!</a>	<a href="#">calvinIII</a>	15	252
<a href="#">FYI- Health food restaurnt in NY</a>	<a href="#">dmarcus97</a>	2	21
<a href="#">Protein Pudding without the Milk here</a>	<a href="#">D00fy</a>	4	95
<a href="#">Favorite Dieting Meal or food</a>	<a href="#">CongoJoe</a>	5	50

Figure 10. Discussion Threads under the Diet Discussion Board

An interesting discovery was that although there were several forums (i.e. diet, power lifting, training, supplements, and sports), each forum had its own audience. So, while there were several discussion forums in Elite, there were members who stuck to only one or two forums and were not interested in others. This means that the audience in the “training forum” sparsely visited the “supplement forum”. And the audience in the “power lifting forum” was not visiting the “diet forum”. The reason is that some groups believe that physical training and exercise are the only answers, and that diet pills and supplements do not work at all. So, they did not bother to learn about supplements. Groups that also focus on power lifting as their sports are usually concerned only about how heavy they can lift, and not on how lean their muscles can be, so they are not that interested in the “diet forum”. While it appears that these topics are related to each other, the “content fragmentation” still divides the Elite members into sub-groups with specific interests.

*Surveys.* As mentioned earlier, one of the unique features of the Elite Fitness system is that members can post surveys and polls. And this was how we gathered our information. Members used them for knowing members’ likes and dislikes, their opinions of certain subjects (diet, training), popularity contest, and even notoriety contest. Survey



results enjoyed credibility at Elite considering that the environment had minimal censorship. As a general rule, surveys do not work when content is perceived as highly manipulated. Surveys do not have any credibility in a censored environment such as the one created by Muscle Magazine where content is heavily skewed in favor of its E-Commerce store. Clearly, surveys are feedback tools that work in a more democratic environment.

*Private Messaging.* Members can also communicate with each other through a private messaging system. It is like an internal email system between members. This reinforces member relationship because certain discussions between two members are sometimes better held in private.

5.2.4. System Messaging Tools: Using Media Richness for Expressing Emotions

Because of the Web’s lack of face-to-face interface, this particular community in study has compensated by adopting its own graphic language and interactive user-interface to encourage members to communicate and express themselves. Based on the work of Vygotsky, these communication tools and symbols are vital to the formation of culture.

One of the rich media tools that members use when writing messages are smilies that express their thoughts and emotions. In some ways, these graphic expressions help members convey how they feel about certain issues, messages, or comments in the discussion threads. From a global perspective, the smilies seem to help bridge communication gaps between members who were from different countries (USA, UK, Norway, and India) and culture. In addition, the expressions emoted by the graphic smilies helped strengthen member relationship because they brought about a certain level of “playfulness” into the messages. Pure textual messages look dull in some messaging or electronic bulletin boards, and adding graphic expressions does help make them become funnier and interesting to read. Graphic smilies are different from text smilies because they can be animated and therefore they can emote feelings in a more dynamic manner. In contrast to graphic smilies (which are in \*.gif format), “text smilies” are typewritten, such as a colon and a right parenthesis to produce a smile (see ‘Reference’ section to view emoticons at a URL linked to [www.netscape.co.uk](http://www.netscape.co.uk)). In some ways, the graphic smilies help express a particular emotion being conveyed. More than 90% of the discussion threads show that graphic smilies are used to convey messages to other members. Elite Fitness has a unique set of graphic smilies that created a unique cultural characteristic for its community (see ‘Reference’ section to view URL link to smilies at [boards.elitefitness.com](http://boards.elitefitness.com)). Another reinforcing factor for the frequent use of graphic smilies can be the age demographics in the Elite Fitness community. Approximately fifty percent of members are 20 – 25 year olds (see Figure 15). This age group tends to be more fascinated with graphic interfaces and multimedia functions on the Internet than plain text messages.

Figure 11 shows some of the smilies used in Elite Fitness’ messaging system and what they usually mean. These are emotion-expressing smilies that several members used to emphasize their points. Figure 12 illustrates some of the members’ messages that incorporate a couple of these smilies.

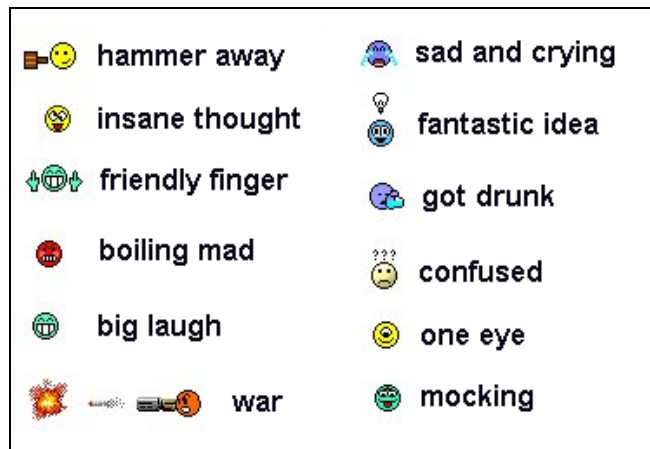


Figure 11. A few of the graphic expressions (smilies) used in Elite Fitness for posting messages

Several of these smilies were unique in Elite’s system in the sense that they were custom made for the Elite members. These smilies form part of the visual language used to communicate ideas and emotions that help strengthen member relationship. Even though some of them look war-like or hostile, the use of these smilies comes across as fun and playful to members. They have helped enhance the richness of communication.

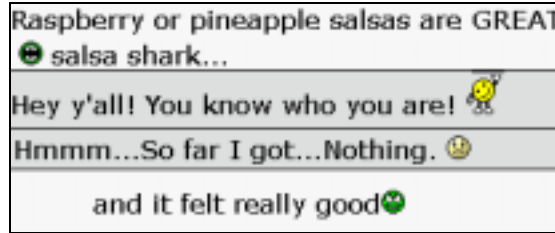


Figure 12. Some of the messages posted with the graphic smilies to enhance expressions

#### 5.2.5. Language Slang – Part of the Culture

Members often abbreviate terms for certain expressions. These abbreviations, which were frequently used in Elite, were also used in other virtual or interactive chat communities. The following are some examples:

- LOL - Laughing Out Loud
- LMAO - Laughing My A\*\* Off
- ROFLMAO - Rolling On Floor Laughing My A\*\* Off
- BRB - Be Right Back
- OMG – Oh My God
- IMO – In my opinion
- Newbies – New members

There were also slang terminologies that were more exclusive to a fitness community, such as Elite. The following are only a few of the slang used:

- 6-pack = defined abdominal muscles
- Cut up = lean body muscles
- Cardio = aerobic exercises
- Gear = steroids
- Forty fives = 45 lbs. Olympic weights
- Deads = deadlift exercise
- Inclines = incline bench press
- DB = dumbbells
- BB = barbells

The use of slang language often gets new members lost in certain discussions. It takes a while for new members to learn about the language, abbreviations, and the use of graphic smilies as part of their messages. This process is part of understanding the social group's culture and communication norms.

### 5.3. Survey Results

#### 5.3.1. Member Loyalty

*Hours of Usage and Hours Online.* Hagel and Armstrong considered these two factors essential to determining the amount of content contribution, and also as an indication of member loyalty. Based on the survey (Figure 13), 46.15% said that they spent more than 2.5 hours on this forum, and more than 75% said that they spent more than an hour each day on this forum. According to Mr. Spellwin, the proprietor of the Elite Fitness community, “many spend in excess of 4 hours a day here”. However, the survey is more realistic with a benchmark of “*more than 2.5 hours a day*”. Due to the success of the community, Mr. Spellwin started to charge fees on October 2001 for accessing the site. The fee started at \$11.97/month plus a one-time member initiation fee of \$20. As of the time of this writing, other communities (with similar features as Elite), do not charge fees and this was an indication that they were still recruiting by enticing new members with ‘free’ content access. The fact that Elite Fitness has the confidence to charge access fees indicated its confidence of its growing member loyalty.

*Payment to Support Community.* Initial survey on October 2001 found that only 6% of the members were willing to pay for accessing the bulletin board. One member said, “George, one thing to consider. Last time I peeked at the poll about people subscribing to the platinum service it looked like only 6% said they would. Many sighted it was just too expensive.” Another survey was conducted in January 2002 and 20% said that they were paying to support the survival of the community. The fact that such survey (as depicted in Figure 14) showed that only 60% said that it was not worth paying, and 40% was either paying or considering the thought of paying for a worthy site, this survey conveyed some possibility that perception of members have changed more positively towards ‘paying for the community’s survival’.

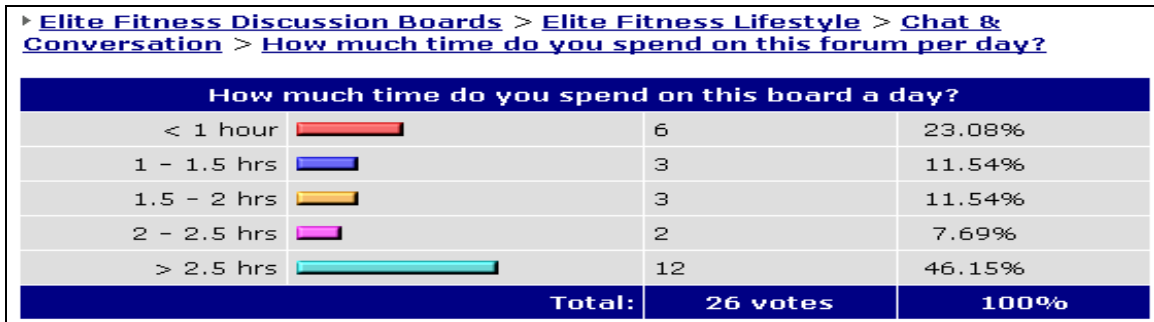


Figure 13. Hours Online (Results taken June 2002)



Figure 14. Survey taken in January 2002



Figure 15. Age Demographics

Considering that 59.38% of the members are 25 years old or below (Figure 15), it is logical to assume that only a minority of the Elite member population can pragmatically afford to pay \$143/year membership to access the bulletin board. So, capturing 30-40% of Elite members to pay for accessing the Bulletin board was a good target.

Below were some suggestions posted by members to the proprietor regarding payment for access fees:

Member A (Agree to Subscription) – “I agree. George has provided us with a forum like no other to discuss things that we can't even discuss anywhere else. We should support it. I did sign up for the 6 month platinum last night and even got emailed a receipt from paypal.”

Member B (Just an Occasional Shopper) – “I don't know if I'm up for the Platinum thing (don't know much about it as I'm not a real regular here) but I like the site enough to do my supplement shopping here. You will be the first stop next time I buy.”

Member C (Pay per Discussion Board) – “How about this. Have like a pay per subscription type per discussion board. You can pay one dollar per month/per board or if you want to pay \$3 per month for 5 boards, and 5\$ per month for all of them. You'd almost certainly get something from everyone with options like those.”

*Number of Posted Messages and Threads.* While the two surveys (figures 13 and 14) may not clearly indicate the real strength of member loyalty, the growing number of posted messages and discussion threads were good indicators of member participation in the community. Logically, member participation reflects member loyalty. Tables 2 and 3 capture two time frames (February 2002 and June 2002) showing the growth in member participation

through content contribution. While the Elite Fitness community messages (content) grew by 42.50%, the Musclemag community posted messages only grew by 13.3%. The Elite Fitness discussion threads also grew by 34.31% in comparison to Musclemag's discussion thread volume of 11.75%. This is in spite of the fact that Elite Fitness charged membership fees during this period, while Musclemag did not.

Table 2 - Growth in Content and Discussion Threads (Elite Fitness)

	Elite (Feb 2002)	Elite (June 2002)	Growth in 3 Months
Registered Members	26,000+	31,600+	21.54%
Messages Posted	1,000,000+	1,425,000+	42.50%
Discussion Threads	102,000+	137,000+	34.31%

Table 3 - Growth in Content and Discussion Threads (Musclemag)

	Musclemag (Feb 2002)	Musclemag (June 2002)	Growth in 3 Months
Registered Members	50,000+	60,500+	21%
Messages Posted	376,000+	425,000+	13.03%
Discussion Threads	51,000+	57,000+	11.75%

The Musclemag community membership growth from February – June 2002 was about the same percentage as Elite's membership growth at around 21%. Elite was leading by only 0.54% growth, but this was despite the fact that Elite was charging access fees and Musclemag was not.

### 5.3.2. Importance of Content and Member Relationship to Member Retention

Based on a survey with 28 responses (Figure 16), 35% attribute their stay in Elite due to content, while 50% said that they like the people in the community. However, many members commented that the initial attraction was the rich amount of member-generated content that they found in the community. After a while, they met and enjoyed the company of other members, and eventually built a strong positive relationship with each other.



Figure 16. Attraction: Content, People or System

Some of the members' feedbacks were:

- (1) I first came to learn more about fitness and bodybuilding, but got involved in "The Community of Nice People"!! (Pamela)
- (2) I came looking for answers... I stayed for the nice people I hadn't expected to find. (Velvett)
- (3) First it was for the info... now it is for the people. (the People's Champ)
- (4) The info on fitness & bodybuilding, but after I joined the people became an important aspect! (Fitness1)
- (5) Tons of info that I have been using for the past year...I have learned so much and the people are great of course... made some cool buddies (Pink233).

### 5.3.3. Influence of the Virtual Community on E-Commerce

The survey questions intended to ask members of the virtual community if they were influenced by the discussions on the Supplement board to purchase from the Elite Fitness online store (Massquantities.com). Figure 17 was the response from 63 members of the virtual community where 50.79% said that they bought from the E-Commerce store, while 49.21% said that they have not bought from the E-Commerce store.





Figure 17. Virtual community's influence on online purchases

Of the respondents, 26 were senior members (more than 6 months in the community), and 57.70% of them have bought from the E-Commerce store. In contrast, 37 members were "newbies" or less than 6 months in the community, and yet 46% of these new members have already bought from the store. We were speculating that less than a third of new members would buy from the store, but it turned out to be better than we expected. It is also interesting to note that more new members participated in the survey. This result somehow contradicts Rothaermel and Sugiyama's observation that "When members are new to a virtual community, they tend to passively watch the community activities from the side lines." This may be due to the fact that Timezone.com, the object of Rothaermel and Sugiyama's study, did not have survey tools or that it was a community of a different nature. This is a possible indication that tools, such as online survey, can encourage even the "new and shy" members to participate in a community activity.

## 6. Analysis and Theory Extension

### 6.1. Emergent Culture

Based on the immersion experience and data collected from the Elite Fitness community lasting more than a year, we have observed that an Internet-based virtual community can dynamically and socially construct an emergent culture, that was driven by the evolving content (knowledge), guided by a sound management philosophy (policy and social atmosphere), and enabled by innovations in interactive web systems and technologies.

The Elite Fitness virtual community showed aspects of an emergent culture in the sense that it demonstrated (1) a liberal environment to encourage the fast growth of content and knowledge; (2) a unique system process and interface used for benchmarking community recognition (stars, ranks, and karma) as incentives for participating in content generation and upholding content quality; (3) its own unique system interface, communication tools, and language slang that were rare at the time of study (but are prone to be copied easily by other communities); and (4) camaraderie support in groupings and sub-groupings formed around specific and general discussion categories.

As defined in the earlier section of this paper, culture is supported by knowledge and social form. In this connection, the community has created a unique body of knowledge that supports the growth and evolution of its culture. This is measured by more than 1 million posted messages in Elite. Robertson and Reese (1999) and Yap (1998) emphasized that interactive knowledge sharing is important for building a virtual community or organization. Below is an example of knowledge sharing process as a discussion thread in the diet forum:

*Member A:* I was wondering what the reason for not mixing carbs and fats together on cutting and normal dieting is? A lot of people always mention either to eat carbs with protein or fat with protein? What's the matter with eating a full meal containing all of them (something like 60/20/20 carbs/fat/protein, in % of energy value). What's the benefit of splitting this stuff up?



*Member B: The recommendation not to eat carbs with fat is based on the idea that insulin is needed to initiate triglyceride storage. However, there is a protein called "acylation stimulating protein" that is stimulated by fat intake, which does the trick just fine.*

*Member C: It's pretty simple. Meals high in protein digested in the absence of carbs and/or fats causes enough of a rise in insulin to promote fat storage.*

Creating good content and helping other members with their problems create a certain social norm which is being reinforced by the karma system. Members who are thankful that other members have helped them would normally click on the karma icon to give a helping member a good karma point. This systemic process has evolved as part of the social construction of the Elite Fitness community. We have also presented how symbols (graphic smilies) and slang are used in messages throughout the community. Members have become accustomed to using these symbols and slang in their messages throughout the bulletin board system. It has become a normal way of expressing emotions and communicating in ways that words and text cannot possibly express.

#### 6.2. The Loop Between Content (Knowledge), Culture, and Systems

The first factor that attracted surfers to the community seems to point to "content attractiveness" (see Figure 18) as discussed in Section 5.3.2. Members and guests eventually find the discussion boards that they are attracted to and form sub-groups with mutual interest. With good content management, this helps build member relationship as members find people with the same interest as theirs. They also reinforce each other's interest either through the building of content or messages of encouragement.

The systems' interactive features and media richness also help improve the interface and interaction capabilities that lead to better communication between members. In accordance with Hagel and Armstrong's model, member relationship and customized interactions lead to the creation of member loyalty. Based on the data/evidence collected in Sections 5.3.2 and 5.2.4, Elite Fitness is a good showcase of the model of Hagel and Armstrong. Aside from finding mutual interest, members find the community enjoyable because they have created good member relationships. In addition, they have the interactive system and tools to customize interaction (i.e. surveys, graphic tools, and private messaging).

Sumi and Mase stated that information system could facilitate shared community awareness and communication. In Elite's case, the shared awareness extended to the member's contribution and good standing in the community, because the system reinforced and encouraged member loyalty through recognition. The Elite's system went further than other virtual communities by benchmarking not only the member's quantitative contribution but its quality of contribution as well. By doing so, it reinforced and encouraged its members to strive for better "content attractiveness". Several members of the Elite Fitness community liked the fact that they had three or four stars and good karma attached to their aliases. We observed that this was specially the case with younger people or people in the military who were conscious of their ranks and status. Benchmarking content contribution is also a kind of social pressure on members who may feel that they must do better to help others by giving better advice or asking the right questions. As more content are contributed due to the incentives, these loops back to improving the social construction of content or community knowledge. More so, members often give feedback to the proprietor on how to improve the system, the interface, and the process. The system is an enabler in affecting content richness and member benchmarking, but likewise the social process also affects how the system is innovated. This logically leads to the social construction of a better interface and interaction between members. (The enabling process is therefore bi-directional). The proprietor of Elite Fitness was actually a big factor for its success because he has always been opened to new ideas. Even though he did not adopt several member suggestions, he listened to members and discussed with them ideas on how to improve the virtual community.

Lastly, the buying behavior is influenced by the attractiveness of the content of the site and also the member's loyalty to the community (see Figure 18). Members commented that content was the first and foremost reason why they were attracted to the site. Figure 17 shows that 46% of new members bought from the site, and this somehow indicates a strong "first impression" of good content and eventually leading to community support. Membership loyalty, a result of better member relationships, also kept senior members coming back. Loyalty seems to be a significant factor and may explain why 57% of senior members were buying from the E-Commerce store.

#### 6.3. Extent of Influence to Economically Support the Community

While members were still lukewarm to the idea of paying \$143/year for membership fee during our data collection stage, more than 50% of them however said that they bought from the E-Commerce store (Figure 17). Members have commented that it was essentially to support the survival of the virtual community. Since this is a relatively new virtual community, it is highly possible that membership and member support will increase in the future if the proprietor keeps up with the same approach and philosophy. The fact that more than 46% of new members have bought from the online store is a sign that there are some good opportunities for the community to increase membership support for its E-Commerce store even among newcomers.

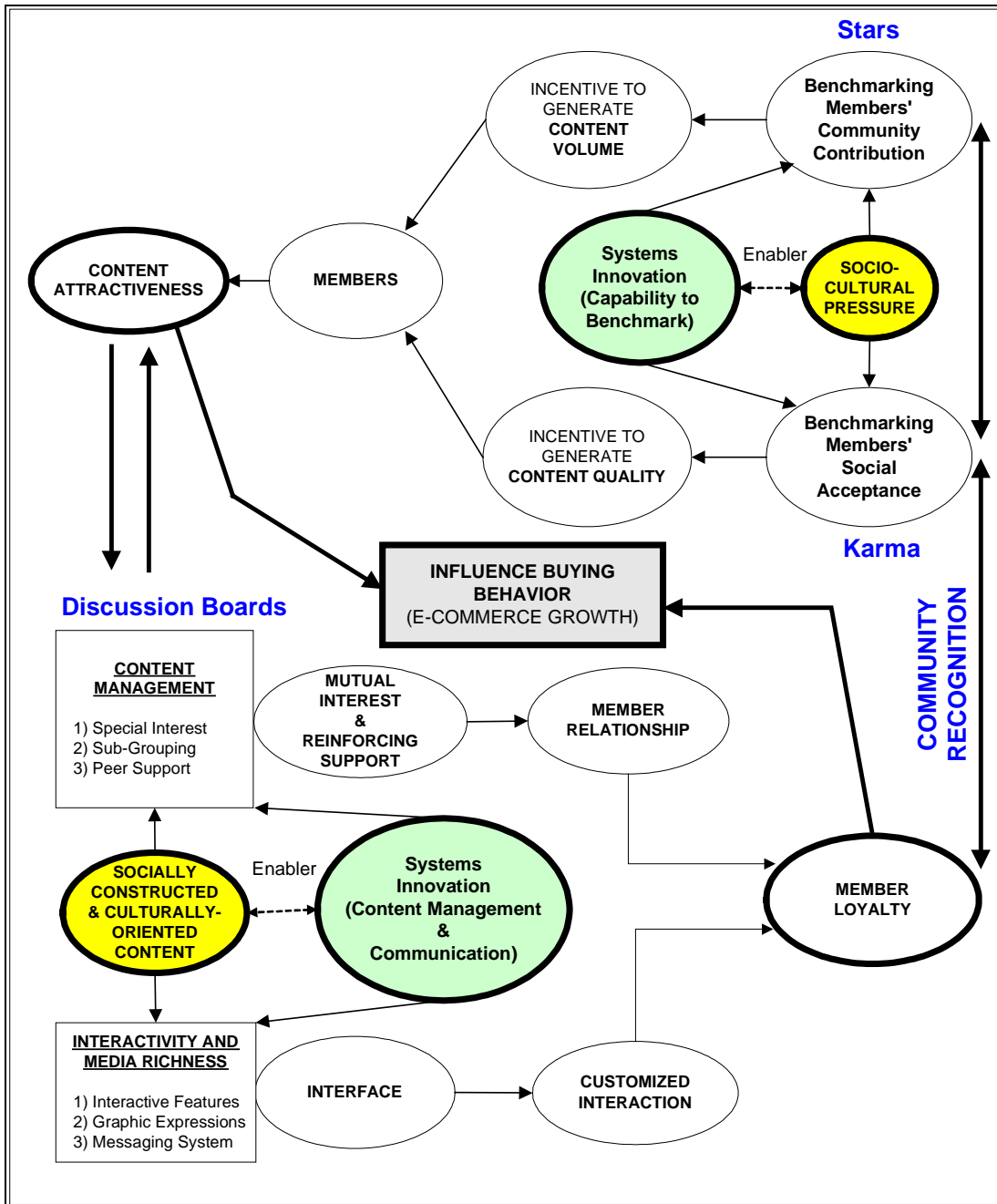


Figure 18. Dynamic interplay of content (knowledge), socio-cultural forces, and system features reinforcing each other

## 7. Conclusion

In retrospect, we determined the elements that led to the success of Elite Fitness: (1) the member-generated content attractiveness coupled with good research from the proprietor himself; (2) the liberal social atmosphere that encouraged people to contribute to the content in discussion boards; (3) the unique system that was able to encourage community recognition and benchmark member contribution; (4) the unique interface and different communication tools that the system provided; and (5) the people that were attracted to join the community.

From a global perspective, the only drawback on the E-Commerce area was that Elite Fitness members who were not geographically located in the United States would not really buy from the online store because the shipping cost was high. They would rather go and buy from their local shops. However, non-US residents could still pay access fees for content and knowledge useful to them. From a local perspective (United States), the economic-

oriented model of Hagel and Armstrong (as expounded in Section 3) fits well with the Elite Fitness community. In addition, the theories of Vygotsky on culture, the theories of Rothaermel and Sugiyama on communities, the research of Sumi and Mase on systems for shared community awareness, and Yap and Bjorn-Andersens' theories in sharing knowledge in virtual environments also helped us understand how knowledge, content, systems, community and culture are weaved together and extend the economic model of Hagel and Armstrong to include the socio-cultural forces. Since the dynamics of virtual communities and E-Commerce have many dimensions, we hope that this study will open more research initiatives in the future.

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