KOSTA WEBCASTING: WEBCASTING AS A MEDIUM TO DELIVER DYNAMIC PRESENTATIONS

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Abstract

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The thesis project of Jiae Lee Chun is the test of webcasting as a dynamic presentation medium. I recreated the KOSTA (KOrean STudents in Abroad, www.KOSTA.ws) seminar video as a simultaneously generated interactive presentation by adding audio, video, images, and text in a webcasting format. Its target audience was Korean graduate students who study outside Korea.

This thesis explains why KOSTA was chosen for the webcasting in the economic aspect. In this part, I raise two questions: (1) what kinds of webcasting business models failed and what were the reasons; and (2) what can be suggested as possible business models for webcasting and why? Then, I address the aforementioned first question by explaining two of Michael Rappa's business models: the advertising model and the subscription model. Furthermore, the reasons for their failures in technical, user and industrial aspects are addressed. Then, I suggest three possible business models: corporate communication channel model, sales promotion model and community model. Among these models, the KOSTA webcasting site will be produced as an example of a community model.

The thesis also detailes the production of the KOSTA webcast, including technical and design challenges met. The thesis resolves with an evaluation of the effectiveness of the webcast, noting lessons learned that others can apply to their webcasting projects.

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CHAPER I. Economic Aspect of the Webcasting Industry – Business Model for Webcasting

Webcasting, or the broadcasting of video/audio and animation through the Internet, has been growing rapidly. This fast growth of webcasting was caused by technical development in computer platforms, servers, network environment including a fast connection, non-linear editing and video / audio compressing software and a relatively lower price of webcasting equipment. Webcasting is used in wide areas including virtual education, corporate communication, e-commerce sales, marketing and entertainment.

- Virtual Education – Universities, corporations and institutions provide lecture audio/video real time or on demand to virtual students through the Internet. Lectures are recorded with digital camera and edited with nonlinear editing tool such as Avid, Media100 or Final Cut Pro then compressed for web delivery. Students in virtual class interact with classmates and instructors effectively via the Internet using multimedia and audio/video streaming media. They can select which lecture to watch whenever/whatever they want for their convenience without travel, get or turn assignments in and even discuss and participate with course communication tools. Through webcasting, students can learn effectively by more targeted contents and a self-paced schedule. Due to time, cost savings and convenience even full-time employees can reach further

education privileges. According to Hall, corporate virtual learning will reach seven billion dollars by 2002 (Hall, 2001).

- E-commerce sales and marketing – webcasting is used as a cost effective tool for sales and marketing. Streaming video and audio are efficient to give detailed product information persuade customers and make the purchase action.
- Entertainment – movie trailer, drama, documentary, comedy, music video and animation webcasting and so on.
- Corporate communication – more and more companies use webcasting as tools for corporate and external communications, new technology education, employee informing, trade shows, marketing and consumer / employee training. Enterprises use webcasting as a tool to communicate between employees at remote locations to enhance sales and marketing. Using an internal network, an enterprise can share information with their employees about products, markets and new technologies without delay. Webcasting communication tools are more powerful than traditional communication channels, which would deliver only voice, text or images.

1. Webcasting Industry - Why Do Entertainment Webcasting Sites Face the Lack of Funding and Revenues?

According to research done by Arbitron, the percentage of Americans who have experience with audio webcasting grew from six percent in 1998 to 23 percent in 2001. More than 52 percent of the Internet users (78 million Americans) have used either Internet audio or video; and six percent (13.4 million) experience streaming media each week (Arbitron / Edison media research, 2001). The HTRC Group predicted that the market would grow from $266 million in 2000 to $1.5 billion by 2002 (Robert-Witt, 2000). An analyst from the Internet Research Group predicted that revenues from webcasting would grow to $2.5 billion by 2004. The expected growth may need to be adjusted to reflect a decrease after the so-called melt down of the dotcom era. Nonetheless, longer-term time predictions expect to see growth. During the unofficial five-year history of the industry, webcasting companies have struggled to find the answer for the one critical question: What is the business model that generates revenues? Similar to the e-commerce companies, many webcasting companies have failed to find appropriate revenue models after investing substantial amounts of money. The most frequently asked question about e-commerce has been, what is a "sustainable business model"? CommerceNet indicated that one of the top ten barriers of entry to e-commerce is the lack of a proven business model (CommerceNet, 2001).

Investors could not find the webcasting industry's business model and serious financial problems started to appear. The stock price of Akamai Technologies, one of the

best recognized webcasting content delivery companies, rose from the IPO price of $20 in October, 2000 to as high as $345 before dropping to $110 in July, 2001 (Bannan, 2000). Why are webcasting business models so elusive? Many entertainment webcasting companies started with revenue advertising and/or subscription, but they failed to gain either one.

Michael Rappa categorized e-commerce business models as follows.

1) **Brokerage**
2) **Advertising**
3) **Infomediary**
4) **Merchant**
5) **Manufacturer**
6) **Affiliate**
7) **Community**
8) **Subscription**
9) **Utility** (Rappa, 2000)

Some of these models, such as advertising, subscription and community models, can be applied as webcasting revenue models.

2. Why Did the Subscription Model Fail?

Among these models, Michael Rappa's advertising and subscription models are the most often utilized revenue models for webcasting companies. The subscription model for e-commerce is based on the user's willingness to pay to access content that he or she considers essential. For example, the *Wall Street Journal* site has been successful because it has gathered users who need high value-added economic content (Rappa, 2000). The subscription model gained another success in the webcasting sites that provide erotic content. But this model did not succeed in the entertainment webcasting industry. That

is, web users were not willing to pay for entertainment purposes. For this reason, many webcasting companies provided free content or combined free with premium content to drive volume and ad revenues. While this method helps generate traffic, most users who were used to free webcasting services still were not willing to pay.

The other reason that the subscription model failed was the nature of media. People usually use entertainment media during their free time, and they don't seem to spend that time in their computer room. They simply watch TV.

3. Why Did the Advertising Model Fail?

The advertising model is based on the revenue model of traditional broadcasting media, such as radio and TV. That is, the content is provided free of charge, but advertising is integrated with it (Rappa, 2000). Many webcasters used advertising, particularly banner ads, as a major or sole source of revenues.

Webcasting companies that chose advertising as a main revenue source had financial difficulties because their bandwidth costs quickly exceeded their advertising revenues. A good example was the case of Broadcast America. Many stations of this company were very popular on the Internet. But, it went bankrupt in mid-December of 2000 because it failed to pay its streaming providers. (Billboard, 2000).

The cost structure of webcasting includes a high fixed cost level. The main cost for webcasting is:

1. Streaming cost – many webcasting companies use a host service for content delivery and this cost is paid for the service. The cost

includes network cost such as bandwidth and other network infrastructure.

2. Software – non-linear editing software such as Avid, Media 100 and Final Cut Pro, compressing software, encoding software, media players, operating systems and server software such as Microsoft Windows Media Services and RealNetworks RealSystem iQ
3. Hardware – video production equipments such as camera, lighting, microphones, desktop computers, servers, editing and encording equipment (Approach, 2001).
4. Content production -A majority of the content production costs are labor costs due to a number of professionally-skilled, high paid video production staff, such as cameraperson, audio person, editor, lighting person, scriptwriter, floor director, producer and director.
5. Encoding and compression –Except for the software and hard ware cost, a majority of the costs are labor costs.

Among these, main costs, software and hardware are only a one-time cost and the only cost required after purchase is for maintenance and software updates. The costs that consistently effect cost structure is streaming, content production, encoding and compression cost. Depending on volume, the live streaming costs anywhere from $0.20 to $420.00 per stream-hour. Production costs generally are not as high as that of TV production, however, depending on the quality and level of professionalism, they may be

in the same ballpark. The cost to encode content for streaming ranges from less than a dollar per minute to hundreds of dollars depends on quality. Furthermore, consulting prices vary from $90 to more than $400 an hour. In addition, the publisher typically pays a nickel per megabyte to stream it. (Buss, Dale, 2000). High quality video/audio service is essential for commercial webcasting for gaining mass audience. Even though the cost range is wide, for the high quality service these costs are usually located higher point in the price rage that make the huge fixed cost.

Overall, based on recent research, the cost of streaming is $47 per thousand listeners, while advertising revenues only generate $20 per thousand. This causes a serious loss (BPI Communications, 2001). Unless webcasting companies can gain advertising revenue exceeding the cost, the company will not be able to survive.

The most important thing about the advertising model is that it only works when the number of users is large or highly specialized. Advertising itself cannot provide sufficient revenues to cover such high costs because such webcasting sites fail to attract mass traffic of users who use the site regularly. "Low traffic means low ad rates. Even the most popular online radio stations have fewer audiences than the 15th-ranked radio station in New York" (Hertzberg, Robert, 2000).

4. Technical Limits for Webcasting

The failure of the Advertising model was due, in part, because of technical limitations that suppressed the creation of mass traffic by users. The file size of entertainment webcasting content, such as video and audio files, is large, and the data rate

is typically high. Therefore, the bandwidth requirements result in low traffic. According to research done by Arbitron, many Internet users do not use streaming media because of technical difficulties and poor performances caused by such net congestion (Arbitron / Edison media research, 2001). At the time many entertainment webcasting companies started their business, cable and telecom providers promised that they would make the Internet blazing-fast with dedicated pipes into homes for video and audio streaming. But today's reality does not live up to their promise. The shared-access base of the cable modem service cause speeds to degrade when more users sign up at the same time. When webcasting data is sent from a webcasting provider to the end user data is broken into many pieces. Each piece is travels a different router. Because of the nature of data flow, even if the provider adds additional servers to reduce the amount of sharing neighborhood, it is not possible to get rid of overloaded or congested interchanges on the Internet routers at large.

Today, nearly a third of Internet users have fast connections, however a sizable repeat audience has not yet been built for the entertainment webcasting companies. Part of the reason may be that many of these fast connections are found in the work place and not at home (Arbitron / Edison media research, 2001). Because people do not seem to have time to watch entertainment webcasting during their work hours, the majorities who have broadband at work do not contribute to the audience for the entertainment webcasting companies. Increasing high-speed connections in the work place is one of the reasons that webcasting can achieve a success as a corporative communication channel, not as an entertainment one.

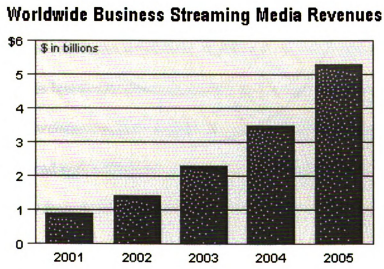
An experiment by Varian shows that the typical Internet user does not have high demands for bandwidth, because they perceive the value of waiting time low. Varian conducted an experiment to measure how much people are willing to pay for various kinds of Internet bandwidth service using parameters to estimate the value of time. When the user perceives the value of waiting time caused by using low speed connection is higher than fast connection cost, he/she will pay for a fast connection (Varian, H.R. 2000). As a result, most users are not willing to pay for faster connections, such as cable modem. The mass traffic of users that is essential for gaining a sufficient profit level by advertising cannot be achieved without increasing the number of broadband users.

The recent dot-com failures accelerated already declining webcasting advertising needs. Close to 70% of NBCi advertising revenues came from dotcom companies. But as the dotcoms began to fail, NBCi tried to get more-traditional advertisers to replace them, but the effort was not very successful and its revenue model collapsed. NBCi lost $245 million during the fourth quarter 2000 alone (McClellan, Steve, 2001). The failure of entertainment webcasting sites shows clearly that webcasting companies need viable business plans with diverse revenue channels beyond advertising alone. The problem facing the webcasting entertainment industry is that it is hard to find healthy revenue channels.

5. Webcasting as Corporate Communication Channel

These days, a majority of webcasting revenues are derived from corporate and institutional users. The world's leading companies, such as Boeing Co., Mercedes-Benz ,

and Hewlett-Packard Co., are using webcasting for corporate and external communications, employee education and informing, public relations, trade shows, sales and marketing and product launches. According to Gartner Inc., a business research firm, 80% of the world's largest corporations will use webcasting for corporate communications and training by 2006. The percentage of large companies (those with 500 or more employees) that use streaming media grew from 10 % in August 1999 to 25% in April 2001. Gartner Group also predicted that 90% of global 2000 companies will soon regularly use streaming media for events (Ott, Karanyll, 2001). The world's top 100 companies are expected to spend $72 million in 2001 on webcasting for product launches and $567 million in 2005. Corporate spending for employee training is expected to rise from $30 million in 2001 to $519 million in 2005 (Wall Street Journal, August 20, 2001).



Source: Garners In-Stat Group

Figure 1: Streaming Media Revenue

Webcasting is considered a very effective means for communicating corporate strategies. There are various available, relatively inexpensive webcasting technologies, so the investment in the technologies can be realized quickly through savings in travel costs and time. According to Gartner, it would cost $650,000 for a large company to establish a live webcasting system to 50 locations, while it would cost about $370,000 to hold a single training conference for 500 employees (Strozniak, 2001).

A case study of Hewlett Packard's worldwide marketing group by Aberdeen Group Inc may be a good example of the use of webcasting in corporate communications. HP began using webcasting two years ago to launch new products. HP used both traditional, expensive road shows and live broadcasts via satellite and videoconferencing. In the first year of using webcasting, besides other benefits, such as being able to reach twice as many reporters and analysts, HP saved $1.2 million. Because high-tech products have short life cycles, the market launch time of a product is critical. Webcasting helped to reduce the launch time of the product (Strozniak, 2001).

Webcasting is less costly than in-person seminars and trade shows. According to IT World, a typical webcasting event costs from $40,000 to $100,000 for 500 to 1,000 people, or $93 per lead with a $70,000 mid-range cost for 750 people. A face-to-face event costs typically from $150 to $250 a person. In addition, because webcasting is available on-demand, it can save money for those who do not show up for a face-to-face event (Ott, 2001).

Webcasting is far more convenient than traditional events. Webcasting a conference provides real-time delivery of information at any moment, eliminating the

barriers raised by time zones and geographical distance. It is easier and more convenient to arrange an on-demand webcasting seminar for busy CEO's than to have them coordinate schedules and all meet at the same time. Any company and institution can reach and deliver training, seminars and regular communications to offices and members in different time zones instantly. In addition to convenience, the other benefit of webcasting is efficiency. Traditional face-to-face events require significant preparation such as arranging travel and coordinating place and materials. (Ott, Karanyll, 2001)

According to Andy Nielsen, a senior analyst in Wain House Research, after the Persian Gulf War ended in 1991, the level of business travel declined, as the use of videoconferencing increased. Nielsen predicts the Sept 11 terrorist attacks will accelerate the use of webcasting to replace travel. This is extremely likely because of not only was was the conflict closer to home but technology is dramatically better now(Michael Bartellet, 2001).

6. Webcasting as Sales Promotion

Webcasting has great potential and is increasingly used for marketing purposes. Victoria's Secret, one of the leading underwear manufacturing companies, had a live online webcasting event of its fashion show in May 2000. The webcast reached over two million people in 140 countries. Besides this amazing number of viewers, the webcast was a remarkable marketing and business success, because online sales increased significantly during the webcast and for the following few days, as the viewers could access the online sales. The viewers were able to purchase the merchandise during the

fashion show when a model wearing the particular merchandise came down the runway, without missing any minute of the show. This was a remarkable success in which new webcasting technology not only helped increase sales indirectly, but also directly enticed the viewers to purchase. According to the company, as a result of this promotion effect, sales on VictoriaSecret.com for the following few days reached the level of the holiday shopping season. In fact, excluding the holiday shopping season sales, sales during those post-webcasting days were the highest (Johnson, 2000).

Apparel has traditionally been viewed as a difficult item to sell online, because shoppers tend to desire feeling the exact fabric texture and seeing how it fits on their body. New webcasting technology reduces this problem. Even though the computer screen is two dimensional, the viewers can experience three-dimensional shapes of apparels by models walking on the runway. According to a survey done by Jupiter, 56 percent of surveyed said that they would use online models to try on clothes; and 51 percent of online shoppers would use zoom-in options to see products better. More and more apparel websites have achieved successful business results by using these tools. Nine West, one of the leading apparel companies for female, reduced the number of product returns by half through adding the zoom option on its webcasting (Johnson, 2000). Many apparel companies use webcasting as a tool of marketing, such as Armaniexchange.com and Gap.com who provide webcasting advertising similar to Victoriasecret.com. Customers can purchase or view the detailed information about clothes while watching advertising by just clicking the clothes they want to buy on the video.

Why can webcasting marketing be effective? According to research by Arbitron, "streamies", or users who watch video or audio webcasting material, are significantly different from other Internet users who don't use webcasting. Because Streamies are heavy Internet users and intense Internet shoppers, Streamies can be the best target consumers for online shopping. Streamies spend twice as much time online as non-streamies and also are twice as likely as non-streamies to engage in e-commerce and shop online. (Arbitron / Edison media research, 2001).

The increase of online shopping will make more inroads for webcasting sales and marketing. Forrester Research estimated that American consumers will spend $184 billion in online shopping by 2004 or 7 percent of all retail sales and average household spending is expected to reach $3,738 (Johnson, 2000).

Travelocity also gained great marketing success using webcasting. Travelocity , a major Internet travel agency, provides its visitors with 360-degree QTVR pictures and various short video clips containing travel information. The webcasted material reduces the risk of customers choosing the wrong packages or destinations with by providing ideas about their visiting places and travel packages through virtual experiences. Webcasting makes customers purchase travel packages with more confidence and ease, which results in more sales.

7. Webcasting as Community Model

The Community Model which is one of Rappa's business models, is a model built around users with a common interest. In this model, users come together to communicate

their ideas and to contribute their resources, such as money and time, to realize common goals. People who have special interest in or highly value their hobby, religion or belief devote themselves (Rappa, 2000).

Rappa's community model often succeeds because it is based on user loyalty, not on a high level of traffic volume. Loyalty makes users highly invest both time and emotion in the web sites. In some cases, users regularly contribute content and/or money. Among various community models, Voluntary Contributor Model is ideal for non-profit institutions. This revenue model gained great success in the traditional public broadcasting industry. Non-profit radio and television broadcasting get funding from charitable sponsors that support the organization's mission (Rappa, 2000).

An example of the Rappa's Voluntary Contributor Model is webcasting of churches in Korea. Many churches deliver various Christianity video and audio contents through the web as church members contribute their resources in different forms to cover costs of the webcasting. For example, the webcasting from Church of Love in Korea is being realized by monetary offerings or labor from church members or volunteer. Because labor costs are the largest cost component in webcasting, the church webcasting save cost greatly due to the volunteer nature of its labor. I addressed previously that webcasting companies that seek their revenue source from advertising or subscription fee have serious financial problem. Unlike these, webcasting of churches don't have financial difficulty because church members' persistent contributions (revenues in a business sense) are attributable for the stability in this webcasting model.

8.Conclusion

The Internet is a new medium that requires an innovative business strategy, which is totally different from that of traditional media. But many webcasting companies followed the same strategy of on-air and cable TV. They started with entertainment content, advertising, and subscription-based revenues. They did not consider the differences between the Internet and traditional media.

Rappa's subscription model failed because (i) a significant portion of web users were not willing to pay for entertainment; and (ii) except younger generations, users in general did not consider the Internet as an entertainment medium. The advertising model failed because (i) the bandwidth costs quickly exceeded the advertising revenues due to the lack of critical mass in the traffic of regular users; and (ii) the webcasting advertising revenues dried up as many dotcom businesses, which had been the single, largest revenue source, collapsed.

However, there are three business models for webcasting that have proven successful, including webcasting as a form of corporate communication, webcasting for sales promotion, and webcasting within targeted community groups.

The world's leading companies are using webcasting for corporate and external communications and training. The increase of broadband in the work place is accelerating the usage of webcasting as a corporate communication tool. Webcasting is considered a very effective means to communicate corporate strategies. Many available webcasting technologies are relatively inexpensive, and better efficiency and cost savings can recoup the investment in the technology.

Webcasting has great potential, and is used increasingly for marketing purposes. More and more apparel companies use webcasting, which has been shown to increase online sales significantly. Furthermore, webcasting helps users obtain more product information that reduces the number of product returns significantly. Webcasting makes customers purchase with more confidence, which turns into more sales.

These business models that I addressed above seems to be consistently incorporated by the webcasting businesses that do not gain mass traffic, mainly more targeted communities. This community model is based on user loyalty, not on high traffic volume. Loyalty encourages users to invest their time and emotion in the site. In some cases, users regularly contribute content and/or money. Among various community models, the voluntary contributor model is ideal for the non-profit organizations, such as religious institutions that generally have a strong loyalty from their believers (Rappa, 2000).

CHAPTER II. KOSTA Webcasting Site Production

1. Purpose

Among the three suggested possible business models, this thesis project introduces the KOSTA webcasting site production as an example of Rappa's Voluntary Contributor Community Model. KOSTA (**KO**rean **ST**udents in **A**broad, www.KOSTA.ws) was founded in 1986 in Washington, D.C. by 200 Korean Christian graduate students. The most important activity of KOSTA is to hold a weeklong summer seminar in each of the countries where it is active. Each year, more than 2,000 graduate students have joined the seminar held in the United States alone, and, in the year 2000, more than 6,000 students joined the seminars in 10 countries including France, Italy, Russia, Canada, Australia, Japan, South America and Taiwan.

The KOSTA webcasting site is a good example of Michael Rappa's Voluntary Contributor Model. KOSTA is a non-profit organization, run by mostly Christian volunteers. The site is based on user loyalty, not on high traffic volume. Members devote their time, content and money to the site. Like other non-profit organizations, the site seeks funding and church sponsors that support the organization's mission. The site's content is based on the stories of leading Korean Christians and the experiences of other site users. The ceaseless loyalty, contributions and content from the users are the success factors of the KOSTA site. In this thesis, I introduce the KOSTA webcasting production as an example of Rappa's Voluntary Contributor Community.

KOSTA VS. Onnuri Internet TV

To solidify KOSTA as an example of Rappa's Voluntary Contributor Community, I compared KOSTA with a real world webcasting company, called Onnuri Internet TV, in Korea. Onnuri Internet TV is one of the largest, private Internet broadcasting companies in Korea. Although Onnuri Internet TV has obtained a volume of users, it has failed to generate economic profits through its webcasting business. Therefore, the company has also executed the strategy of generating cash from diversified, non-webcasting businesses (which is based on a non-voluntary basis), such as wedding planning and video production, by leveraging its market presence through its brand awareness and reputation. However, the non-webcasting business has not generated enough cash flow to cover its own expenses. The company's annual expenses for its webcasting business only are approximately $1.2 million, of which $1.1 million (90% of the annual expense) is in the contents production, including labor, equipment and office/studio rent expenses. The balance, $100,000, is in web delivery costs, including server operations and high-speed connections. A majority of the content production costs are labor costs. Production of video content requires a pricey labor cost due to a number of professionally-skilled, high paid video production staff, such as cameraperson, audio person, editor, lighting person, scriptwriter, floor director, producer and director. In addition, the cost to hire freelancers for entertainers and program hosts/hostesses are even higher.

KOSTA has a different situation. KOSTA is planning to start its webcasting service by the winter of 2002. It has already formed a web production team and has completed the production of contents to deliver over the webcasting service. All of the team members are volunteers. KOSTA has a significantly different cost structure than Onnuri Internet TV, because it has virtually no labor costs due to the volunteering nature of its laborers. KOSTA has been able to hire some of the most famous and popular lecturers, who are also volunteers. The lecturers even pay for their own flights and housing for the KOSTA annual summer seminars. Such a volunteer basis is not expected to compromise any quality of the contents because volunteers are strongly devoted to the religious mission.

Video production requires very expensive equipment, such as camera, lighting, audio system and editor. Unlike Onnuri Internet TV with major costs that are incurred in production equipment and office/studio rent expenses, KOSTA utilizes its web team members who contribute their own equipment without any monetary charges to KOSTA.

Only expenditures for KOSTA will be web delivery costs, including a media server and monthly fees for a content delivery company service. These web delivery costs are typically only about 10% of the entire webcasting expenditure. As a result, compared with other webcasting companies that do not have volunteer base, KOSTA spends only 10% of expense. These costs will be fully covered by donations from KOSTA members.

The KOSTA contents is not only economical viable to produce, but also technically ideal for webcasting. Because of the size of compressed video contents, a key

to a successful webcasting production is to reduce data rate through compression. Video with minimal motion and a static background, the so-called "talking head", is ideal to compress and reduce bandwidth demands. The KOSTA contents consist mostly of talking heads and is, therefore, ideal for webcasting.

KOSTA 2001 Seminar

The KOSTA 2001 seminar was held at Wheaton College in Chicago from July 2nd to July 7th. I attended the seminar and I realized that the KOSTA seminar was ideal for webcasting based on several reasons. The KOSTA USA seminar is held in Chicago only once in a year. Because of time and place limitations, many people who desire to attend the seminar fail to take part in it. Through webcasting, users can reach KOSTA lectures whenever they want without the cost and trouble related with travel. They can even tailor the lecture for interactive self-paced learning.

Webcasting can be an efficient tool both for the people who miss the seminar and the participants who want to view the lectures that they missed or view lectures again,. KOSTA seminar is popular because of the various lectures and activities by the most famous lecturers in Korea. Lecture topics are diverse such as marriage, keeping good relationships with coworkers, love, anger, grief management, forgiveness, self-esteem, evil spirits, the Bible, leadership, praise, prayer, quiet time, child education, Evangelism, death, and so on. Every day there were about 20 elective lectures and about 10 activities. Because the seminar schedule was very tight, it was hard to join all of the daily activities. The daily schedule began at 6 AM, and it ended at 10 PM. Even after 10 PM, there were

unofficial small group meetings. Most of the participants finished their daily activities around midnight or later. All the daytime seminars and activities were scheduled back-to-back, thus, there was not much free time. Even though participants were not supposed to join all of the daily activities, most of the participants were very devoted and wanted to join as many as possible. However, they could not, because many sessions ran at concurrent times. All of the lecture speakers were very prominent, and the participants felt they missed a lot.

Time	**Daily Program**
6:30	Early Morning Praying Time &Morning Sermon
7:30	Breakfast
8:30	Small Group Quiet time
9:45	KOSTAN Festival and Bible Lecture
12:00	Lunch / Book fare
13:30	Special Topic seminars 1
15:30	Special Topic seminars 2
17:00	Dinner
18:40	Night Sermon Praise and Prayer Time
20:00	Small Group Meeting
21:00	Sleeping hour

Table 1: Typical Daily Schedule of the KOSTA seminar

Many participants wanted to listen to what they missed; therefore the KOSTA webcast could be an ideal source for them. Furthermore, the KOSTA webcast could provide a chance to view the lectures again. To meet these demands, KOSTA sold recorded audiocassette tapes of the lectures. But, the audiocassette tapes have certain limitations without video. With only audio, it is more difficult to convey mood and sentiment. It is essential to see the lecturers' nonverbal expressions to understand the whole context of actual meanings. Furthermore, ordering and delivering of the tapes via

mail for those who do not participate in the seminar may take several weeks. The KOSTA webcast can provide users with benefits in the lectures, which is conveyed through the video, audio, and lecture slides whenever and wherever they would like to see them.

Webcasting is an efficient, alternative form for education. People can save travel budget and time by watching and participating in webcasting, instead of physically attending events. The webcasting users may stop, review and skip portions of the material whenever they want. Webcasting users can have interactive communications by asking questions and by making comments online. Because of these benefits, using webcasting is ideal for KOSTA, whose aim is to educate Korean Christian as leaders.

2. Users

One of the most important factors that a multimedia designer needs to consider is the target users. How accurately researched the target users are is a key to success for the designer. I conducted demographic and persona analysis for the user research for this thesis.

Through the user research, I found important factors that might affect my thesis project design through the following questions:

- What personal goals or needs would the users realize through the webcast?
- Why would they use KOSTA webcasting?
- What would they benefit from watching the webcasting?

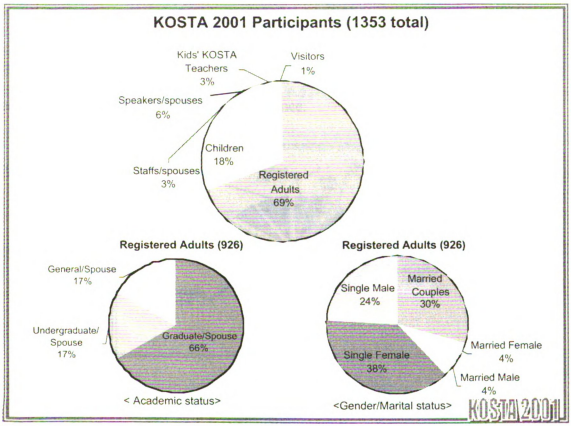
- What would be their motivation to use webcasting?
- How would they access the webcast?
- What would be their previous webcasting experiences?
- Where would they watch the webcasting most?
- Where would they watch the webcasting second most?
- What would be the physical environment when they watch the webcasting?
- What would be the noise level in their surrounding?
- Do the environments influence the users?
- Is watching the webcasting a primary or secondary job? If it is a secondary job, what do they do primarily during the webcasting?
- What do they like the most about the KOSTA summer seminars?
- Do they watch alone?
- Whom do they watch with?
- How much time do they spend?
- Do they have much time to watch?
- When do they watch?
- Is it easy to access a fast connection?
- What is their computer skill?
- What is their connection speed? (56K modem or fast connection)
- What kind of computer do they use as a primary one?
- What kind of computer do they use as a secondary one?
- What is the screen size of the primary computer?

- What is the screen size of the secondary computer?
- Is it easy to access the computer?
- What kind of platform do they have?
- What kind of media player do they have?
- Are they willing to download new plug-ins?
- Are they willing to learn new devices?
- Do they take a risk when they use devices?
- What is their troubleshooting method?
- How much do they have knowledge about the lecture topic?
- What are their occupations?
- What is their major?
- What is their educational level?
- What is their religion?
- What is their age?
- What are their generation characteristics?
- What is their value such as time, money…?
- What kind of language do they speak?
- Are they bilingual?
- Where do they live?
- How long will it take to KOSTA seminar place?
- Do they want to join the KOSTA seminar?
- Do they have KOSTA seminar experience?

- Why do they join the seminar?
- What are obstacles to join it?
- What interests do they have in KOSTA?

General Understanding by Demographical Research

KOSTA users were Christians or people who were interested in Christianity. They contribute highly their time, content and emotion to the site. Most of them are single Korean graduate students who study outside of Korea ("study abroad"). According to KOSTA, 66% of participants who joined the KOSTA 2001 USA seminar were graduate students or spouses of graduate students.



Source: KOSTA 2001 Demographics

Figure 2: KOSTA 2001 Participant Demographic 1

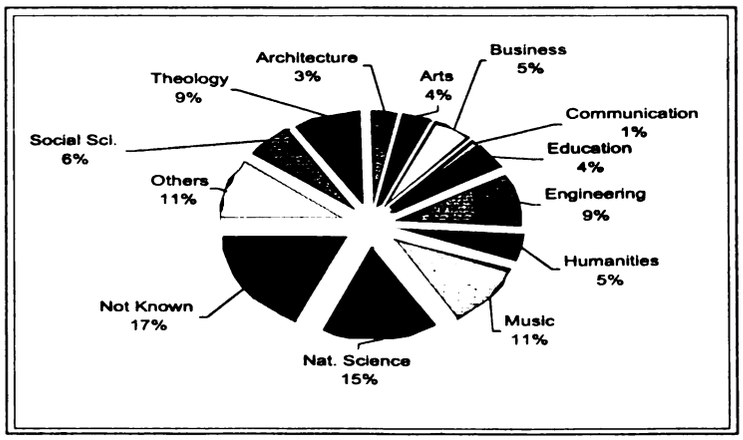
2001 Overall Statistics

		Adults	Accomanying Family(Adults)	Accomanying Family(Children)
Registered Participants (926 Adults)	Students/Spouses	893	0	209
	Praise Team	15	1	1
	Prayer Team	12	5	3
Staff/Speakers (165 Adults)	Full Time Staffs	28	7	10
	Speakers	59	25	17
	Kids' KOSTA Teachers	46	0	0
Visitors (20 Adults)	KOSTA Staffs(non-USA)	3	1	2
	Global Booth	12	0	0
	Tape Ministry	4	0	0
		1072	39	242

Source: KOSTA 2001 Demographics

Table 2: KOSTA 2001 Participant Demographic 2

Among the KOSTA June 2001 participants, only 38% were married. Academic majors of the participants varied: 15% in natural science, 11% in music, 9% in technology and science and 6% in social science.



Source: KOSTA 2001 Demographics

Figure 3: KOSTA 2001 Participant Demographic 3

Through accessing webcasting, more members who cannot go to the seminar due to the time constraint will be able to participate in the seminar activities virtually. Furthermore, due to housing space limitations at the summer seminar, there is currently a limit on the number of participants who can attend the summer seminar. Webcasting will eliminate this barrier, allowing an unlimited number of participants throughout the world.

Webcasting medium is well suited for KOSTA members, as well. They have high education levels. They are also heavy computer users. They generally have computer access at home, the library, and their school office or laboratory. This avoids many of the barriers that the general population has with webcasting.

According to KOSTA 2001 demographics, 69% of participants are adults and almost 100% of the adults are graduate students or their spouses. Percentage of married couples, single females, and single males are similar and each portion of the total is 30%, 38% and 24%. Therefore I choose each one of these categories as Hypothetical Brief Personas such as 1) Married Male Christian Korean Graduate Student, 2) Single Female Ph. D Student and 3) Korean Housewife of graduate student who studies abroad.

The characteristics of the target audience chosen based on the demographics is as followed:

- Christian
- Korean
- Age in the 30's
- Graduate students who study abroad or their spouses
- Have basic knowledge about computers
- Busy

- Bilingual Korean/ English
- Korean native speaker
- Highly devoted
- Have a computer
- Easy to access broadband
- Highly educated
- Living all over United States
- Have various majors

Persona

As a TV program producer, I experienced great success in the TV program production when I had a precise vision of the target audience. Defining detailed characteristics, needs, environments and goals of target users is a key to success for multimedia design. This information can be a clear guideline for design details and help to make quick and efficient design decisions. Persona analysis, named by Alan Cooper, is made up of a hypothetical user- persona -that represents a real user the best and designed for only the persona. According to Cooper, even though persona is not a real person, the specific and much detailed characteristics of persona needs to be defined precisely through the investigation. I started with making up three possible typical types of users with approximate characteristics of target users and developed them to a primary, secondary and third persona (Cooper, 1999). I created a summary of hypothetical persona and questions / answers about important factors that might affect my thesis project design.

1) Typical User 1 Profile- Married Male Christian Korean Graduate Student:

- A 30 - year- old graduate student who studies in Minneapolis
- Is married for five years
- Finished his undergraduate degree at one of the top ten universities in Korea and came to the United States three years ago
- Bilingual English /Korean
- Good computer skills
- Much experience in streaming media
- Heavy Internet user
- Connection speed - broadband
- Computer game lover
- Spends one or two hours for gaming through the Internet on the weekend
- Participated in a KOSTA seminar three years ago
- Frequent user of the KOSTA site
- Contributes his time and resources for the site contents
- Very busy everyday, finishing his course work, working as a TA and preparing his thesis
- Prefers to watch the webcasting instead of joining the seminar in person

After creating main characteristics of typical user 1, I added up important factors that might affect my thesis project design through the questions and answers based on investigation about KOSTA members as I mentioned previously.

Occupation	Graduate Student
Age	30
Married/ single	M
Sex	M
Computer type	PC
Motivation for learning the computer	High
Computer skill	Intermediate
Troubleshooting expertise	Expert
Connection speed (56K modem or fast connection)	Fast speed –cable modem
Formal experience of webcasting	Not much
Primary watching place	Home
Environments	Quiet
Number of persons watch with?	One. With his wife
Is watching a webcasting is the primary or secondary action?	Primary action.
If it is secondary what do you do during watching the webcasting?	Sometimes he does other things, such as checking e-mail or searching something on the web while watching webcasting.

About KOSTA Seminars

Have you ever attended?	Once. Two years ago.
What do you like the most about summer seminar?	Listening to various Korean famous lectures. It is very difficult to listen these lectures in the United States.
What is your interest in KOSTA?	In-depth Bible study. KOSTA is the only place to get various Bible lectures of Korean famous speakers.
Why would you want to see the webcast?	He is very busy because of schoolwork. It's not easy to have vacation and join a one-week seminar of KOSTA.
How do you access the webcast?	He watches the webcasting on weekends with a fast connection at home.
What personal goals or needs might the webcast meet for you?	Religious purpose. He would like to have a stronger religious belief through KOSTA experiences. He is a teacher of church youth group. He would like to learn more about the Bible and to teach youth students. He joined a KOSTA seminar, but he could not join all of the

	lectures. He wants to watch the webcasting whenever he has time.

Table 3: Typical User 1 Hypothetical Persona Summary

2) Typical User 2 Profile - Single Female Ph. D Student:

- A 29 year old single Ph. D Korean student
- Came to the United States six years ago
- Finished her masters degree in New York and then moved to Florida three years ago to join a Ph.D. program
- Frequent computer user -Microsoft Word and Internet Explorer
- Primary computer user at her office or library
- Troubleshooting expertise- beginner level. Needs someone who can solve her computer problems
- Usually communicates with her friends in Korea via email or chatting online
- Easily frustrated by software problems
- Music and movie lover; Potential streaming media user
- Spends most of her free time at church activities and programs
- A choir member and a youth group Bible teacher
- Work as a TA and RA for living and earning tuition. Even though she has a monthly $1,000 stipend from her college, she cannot afford a broadband connection at home.
- Prefers audio webcasting to video webcasting due to its smaller file size and faster download timing.

Occupation	Ph. D student
Age	29
Married/ single	Single
Sex	F
Computer type	PC
Motivation for learning the computer	Low
Computer skill	Beginner
Connection speed (56K modem or fast connection)	56K
Formal experience of webcasting	Not much. Only movie trailers.
Primary watching place	Office that has a cable modem
Environments	Quiet but easily interrupted by student visits. She needs to use headset when her officemate is with her.
Number of persons watch with?	0.
Is watching a webcasting is the primary or secondary action?	Secondary action.
If it is secondary what do you do during watching the webcasting?	When she is doing something that requires less concentration, for example, eating lunch, she watches it.

About KOSTA Seminars

Have you ever attended?	Twice
What do you like the most about summer seminars?	It is so great to learn broad knowledge about Christianity for her. She has been a member of a Baptist church for 20 years, and she has not had much chance to meet other Christians other than Baptists.
What is your interest in KOSTA?	She wants to have in-depth knowledge about the Bible and learn the way to have a strong belief. She wants to share her experience with other students.
Why would you want to see the webcast?	The Seminar venue is too far from where she lives. She needs to drive more than 8 hours to get there.
How might you possibly access the webcast?	She does not have any a fast connection at her place. She prefers watching it at her office which has LAN.

What personal goals or needs might the webcast meet for you?	Save time and money.

Table 4: Typical User 2 Hypothetical Persona Summary

3) Typical user 3 - Korean House Wife:

- A housewife who lives with her husband who is a Ph.D. student at University of Texas at Austin.
- A college graduate – Music degree
- Came to the United States three years ago with her husband
- Attends English as Second Language classes.
- Native language- Korean
- Computer trouble shooting expertise - Beginner
- Trip lover, usually stuck at home because of her busy husband
- Spends most of her time for church activities.
- Frequent user of the audio webcasting of Korean Christian broadcasting.
- Prefers to watch webcasting to joining the KOSTA seminars in person.
- Does not have much webcasting experience.

Occupation	Housewife whose husband is a graduate student
Age	35
Married/ single	M
Sex	F
Computer type	PC
Motivation for learning the computer	Low
Computer skill	Not good. Can only explore the Internet.

Connection speed (56K modem or fast connection)	56K
Formal experience of webcasting	None
Primary watching place	Home
Environments	Noisy and disturbed by her baby
Number of persons watch with?	Alone
Is watching a webcasting is the primary or secondary action?	Secondary action
If it is secondary what do you do during watching the webcasting?	She needs to baby-sit and do housework. She hardly can concentrate on one task.

About KOSTA Seminars

Have you ever attended?	Never
What is your interest in KOSTA?	Various lectures. She heard that it was very interesting and moving.
Why would you want to see the webcast?	She really wants to join the seminars, but she can't because of her baby. Her husband cannot join either due to his time constraint. She does not want to drive to the seminar alone without her husband.
How might you possibly access the webcast?	She is not good at the computer, but her husband helps her connect to the webcasting.
What personal goals or needs might the webcast meet for you?	She is a housewife. She hardly goes out because of her baby. She needs some things to do at home when she is babysitting.

Table 5: Typical User 3 Hypothetical Persona Summary

Cast of Characters & Primary and Secondary Personas Based on the Descriptions of the Typical User 1, 2 and 3.

According to Alan Cooper, by focusing the media design on only one single primary persona who is the main target user, a designer can gain far greater success than by focusing on broad users. A designer is needed to create multimedia to satisfy the

primary persona in any situation. It is not possible to create a design to fulfill two different users' tastes. For example, if one user likes a feature and the other dislikes it, a designer cannot choose a middle option. Even if a designer finds an option to compromise two users' tastes and builds a combination feature, nobody would want the design (Cooper, 1999). The KOSTA primary persona was based on the typical user analysis. I selected the typical user 1 as the primary persona and typical user 2 and3 as the secondary and third persona and developed them to have more sophisticated and clear characteristics.

1) *Primary persona*: Christian Korean Graduate Student, Harry

Harry is a 30-year-old graduate student who studies in Minneapolis. He got married five years ago and has lived with his wife who is a housewife. He finished his undergraduate degree at one of the top ten universities in Korea, and he came to the United States three years ago. He has good English communication skills, but is more comfortable in communicating in Korean, his native language. He has good computer skills and has much experience in streaming media. He spends more than six hours a day on his computer on weekdays at his office and home. He has a broadband access at his home and office that is very useful for big file downloads, such as video and audio. It is also very easy to access broadband connections at his university's facilities.

He loves computer games. He spends one or two hours for gaming through the Internet a day. Because of his computer game experience, he is very good in dealing with webcasting video and audio interfaces that are very similar to computer game interfaces. He went to a KOSTA seminar three years ago. He enjoyed the seminar because he could

listen to various lectures of Korean Christian leaders. Since then, he has visited the KOSTA site regularly, four to five times per month, and has read other members' stories. He has also posted his own spiritual experiences to share with other members.

He communicates with other KOSTA members who previously visited a KOSTA seminar through the KOSTA website. They can chat and post their stories to share. Like other KOSTA members, he is willing to devote his time and resources for the site contents. He is very busy everyday with finishing his course work, working as Teaching Assistant (TA) and preparing his thesis. He would like to join another KOSTA summer seminar, but it is not easy for him to have a one-week long vacation due to his tight schedule at work. Thus, he prefers to watch the webcasting instead of attending the seminar in person.

He does not have enough time to watch any long webcasting that takes more than 30 minutes. He prefers to watch a short part of webcasting lectures in 10 to 20 minute chapters. He likes to watch new testament Bible lectures through the Internet to gain in-depth knowledge about the Bible.

I designed the KOSTA webcasting site focused on this primary persona as followed:

Characteristic effects on project design	Result	Design Suggestions
Computer type	PC	Best media for PC is Windows Media
Computer skill	Intermediate	Simple interface design and easy trouble shooting is needed
Connection speed (56K modem or fast	Fast speed –cable modem	High video quality option

connection)		
Formal experience of webcasting	Not much	Easy to use interface design is needed
Primary watching place	Home	Using alert sounds or feedback sounds is not a good idea because they cannot be used at public computers.
Environments	Quiet	User can concentrate on the webcasting contents. More complicated contents and other material to help to understand lecture such as slides or notes could be combined with a video.
Number of persons watch with?	With his wife	A design for multi users is needed.
If it is secondary what do you do during watching the webcasting?	Sometimes he does other thing such as check his email or search for something on the web while watching the webcasting	Audio only option will be efficient for this occasion.

About KOSTA Seminars

What do you like the most about summer seminar?	He loves to listen to various lectures by famous Korean speakers. It is difficult to find occasions to listen to the lectures in the United States	Webcasting content must be various lectures
What is your interest in KOSTA?	He wants to participate in deep Bible studies. KOSTA is the only place to get various Bible lectures of famous Korean speakers.	Slides and notes or recommended Bible site links for in-depth understanding of the Bible is needed.
Why would you want to see the webcast?	He is very busy because of his schoolwork. It's not easy to have a vacation and join a one-week seminar.	A design for those who have not experienced the seminars in person is needed.

How might you possibly access the webcast?	He has a fast connection at home. He watches the webcasting on weekends.	*A high quality and bigger file size video may be used.*
What personal goals or needs might the webcast meet for you?	For religious purposes. He wants to have stronger religious beliefs through KOSTA. He is a teacher of a church youth group. He wants to learn about the Bible and teach it to the students. He joined the KOSTA seminar but he couldn't attend all of the lectures. He wants to watch the webcasting whenever he has time.	More detailed contents and material to help to give deep knowledge about the Bible, such as slides or notes, is needed.

Table 6: Primary Persona Summary

2) Secondary persona-Hae-Jin: Female single Ph. D student

Hae-Jin is a 29- year-old single Ph. D Korean student. She came to the United States six years ago and finished her master's degree in New York, then moved to Florida three years ago to join a Ph.D. program. She can access the Internet and her email through Internet Explorer and write reports using MS Word and, but she does not know much about computer. Mostly, she uses her computer alone either in her home or office. When she has problems with her personal computer, she becomes frustrated. She needs someone to solve her computer problems when they occur. She usually communicates with her friends in Korea via email or chatting. She had a horrible experience because she did not know how to FTP her class assignment files to her class server. She loves listening to music and watching movies. She does not like to use streaming media on the

Internet, because she does not want to, nor has the time to learn how to use webcasting. Rather than spending her own time and struggling through the learning process, she loves to go shopping and weight train. She spends most of her free time at church activities and programs. She is a choir member and a youth group Bible teacher. She works as a TA and an RA for a living and to earn tuition. Even though she has a monthly $1,000 assistantship from her college, she cannot afford a broadband connection at home. She prefers audio webcasting to video webcasting due to its smaller file size and faster downloading time.

She became a Christian after she came to the United States. She joined a Bible study group and choir. Because the KOSTA seminar is very popular to Korean students, more than 2,000 students apply for the seminar annually. Only 1,300 students can attends due to a capacity issue. She planned to join the KOSTA seminar last year, but she couldn't because she needed to attend summer school classes and applied to the seminar late and no spaces were left. She would love to listen to the KOSTA lectures if there were alternative ways to access them. She does not visits the KOSTA site very often, but she is willing to devote her time and resources to the site contents.

3) Third Persona - Sunny: Korean House wife

She is a housewife who lives with her husband in Texas. Her husband is a Ph.D. student at University of Texas at Austin. She got married three years ago and has a one-year old daughter, named Hanna. She is a college graduate. She came to the United States three years ago with her husband and joined an English as Second Language class. After

studying English for three years in a community language center, her English has not improved much. She prefers communicating in Korean.

She spends most of her time at home, exploring the Internet and chatting with others. But she does not have much knowledge about the computer. Even though she has time and wants to learn the computer system, she does not have any resources to learn from. When she has problems with the computer, her husband does troubleshooting for her. She loves to take trips to other cities, but she does not have much chance to go due to her husband's tight schedule at his school. Because she has more free time in the United States than in Korea, she spends more time on church activities. She goes to a small Korean church nearby and it is hard for a church of that size to invite prominent Christian leaders. Therefore she does not have much opportunity to listen to the lectures of them at her church. As one solution, she turned to audio webcasting of Korean Christian broadcasting.

Many church members at her church have joined the KOSTA seminar. She would love to attend the seminar, but her husband is too busy with his schoolwork. She feels uncomfortable traveling alone and she needs somebody to watch her baby while driving, so she cannot go to Chicago where the seminar takes place. She loves to listen to KOSTA webcasting. Nonetheless, she does not have a broadband connection at home, and she is not accustomed to webcasting interfaces. She has never tried to watch video webcasting that has more complicated interfaces. During the daytime, she becomes bored when watching her one-year-old daughter. She wishes to listen to the KOSTA audio webcasting.

3. Communication Objective

This thesis project aimed to extend the KOSTA site to add a webcasting component (i) to provide an example webcasting site production of a possible business model based on the Michael Rappa's Community Model; (ii) to examine webcasting as a medium to deliver dynamic presentations; and (iii) to construct the ground work for webcasting as the efficient way to provide remote education.

4. *Program Contents* and Presentations

Introduction – Webcasting Technology Overview

Webcasting has developed to the new level of interactive media. Flash animation interfaces are embedded with video and video is synchronized with text, graphics, animation and other media. The evolution of webcasting was triggered by technical development in computer platforms, servers, network environments, including a fast connection and non-linear editing and video / audio compressing software and a relatively lower price of webcasting equipment gained by this technical development including:

1. DV (Digital Videotape) – Compared with analog videotape formats for broadcasting, DV is not only significantly less expensive but also easy to use. DV makes it possible to produce high quality video for non-professionals. DV is of professional premium quality and it is easy to transfer data to a desktop computer through IEEE 1394 such as Apple's

FireWire and Sony's iLink. Camcorders utilizing digital format guarantee high quality video footage at extremely low cost (Leland, 2001).

2. Software- There are three major streaming platforms: QuickTime, Microsoft Windows Media Services and RealNetworks RealSystem iQ. During the unofficial five-year history of the webcasting industry, these platforms show the great technological advancements that form the foundation of webcasting development. Recent webcasting software technology advancement includes encryption, server licensing, codecs, media support and accuracy to deliver streaming files(Approach, 2001).
3. Network Infrastructure- As I mentioned in chapter 1, more and more people get high-speed connections that provide more bandwidth for webcasting.
4. Server – More powerful servers are available at lower prices. A Pentium III - 600MHZ, 38 GB or more hard drive space - is available at the cost range of 3,000 to 5,000 dollars. This platform can serve as a streaming server with software such as Microsoft Windows Media Services , Real Networks Real System iQ or QuickTime Darwin Streaming Server(Approach, 2001).

KOSTA Webcasting Production

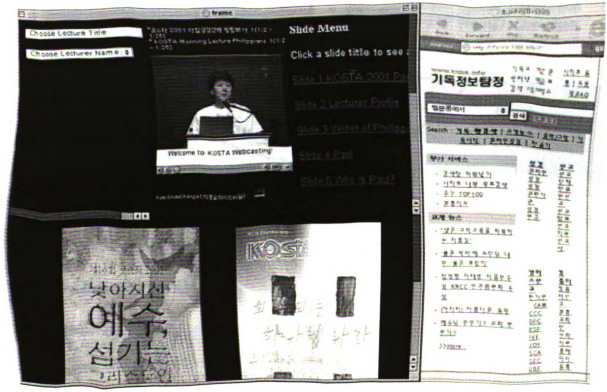
I produced a re-creation of the KOSTA (KOrean STudents in America, www.KOSTA.ws) seminar video as a web-delivered, interactive presentation that integrates audio, video, graphics and text in a webcast format.

The KOSTA Webcasting production was produced in the following steps:

1. Shooting video content source
2. Capturing the video/audio to a hard drive
3. Editing and adding visual effects and graphics such as title and captions to the video
4. Compressing video and audio files
5. Delivery of the content to the web

I re-produced the morning Bible lecture which is one of the largest seminars. The lecture was about the Philippians, one chapter in the New Testament of the Bible. The original live lecture at KOSTA 2001 had more than 1000 participants attended.

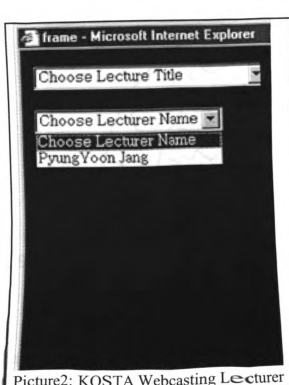
The KOSTA webcasting site has two windows: 1) main frame window contains slide, video, lecture list and slide title menu frame and 2) working window.



Picture 1: KOSTA Webcasting Main Page

This site also contains function panels as follows:

1) Lecture index – drop down menu where the user can choose a lecture by the lecture title
2) Lecturer index- drop down menu where the user can choose a lecture by the lecturer name
3) Slide index – lecture slide index where the user can choose a slide
4) Slide/ video synchronization button- the user can synchronize on or off the video with the slide.

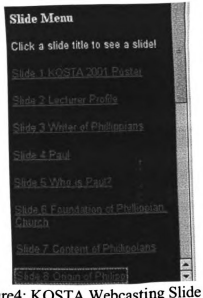


Picture2: KOSTA Webcasting Lecturer index

Picture3: KOSTA Webcasting Lecture index

The slide frame shows charts, tables, graphics, hyper links and texts for better understanding of the lecture topics. The contents of the video and slide window are simultaneously synchronized. Slides are changed automatically depending on the lecture content.

Besides slides shown automatically, users can see a slide at any moment by clicking a slide title on the slide menu. Users can turn off the synchronization of video and slides by clicking the auto slide change function on/off button and customizing the slides order on their own.



Picture4: KOSTA Webcasting Slide menu

Picture5: KOSTA Webcasting Video Frame

On the working window, a user can explore other websites while watching a lecture. He/she may visit websites related to the lecture. Users can also use the working window to do other tasks such as checking E-mail. Slides contain useful links related to the lecture topic and users can visit the linked sites.

According to the KOSTA webcasting user persona profile, Internet connections of the primary target user, the secondary and the third persona are LAN and 56K modem. Based on the Internet connection, I made two resolution options for video – slow

connection (56K modem) or fast connection (Dual ISDN). A user can choose either video option according to his/her connection. The secondary and third personas prefer audio only option. Because I mainly focus on the primary persona and used the secondary and the third persona as supplement, I did not make the audio only option. Due to network congestion caused by the heavy volume of network traffic, the bandwidth is often not achieved. Table 2 displays the safe data rate that usually can be achieved. I started with the safe data rate for 56.6 K Modem and LAN as follows, but the outcome video quality for LAN after compression was not good and frequently delayed.

Connection Speed	Safe Data Rate(kbits/sec)	Safe Data Rate(KBytes/sec)
28.8 Modem	20 kbits/sec	2.5 KBytes/sec
56.6 Modem	32 kbits/sec	4 KBytes/sec
Dual ISDN	96 kbits/sec	12 KBytes/sec
T1/DSL/Cable Modem	300 kbits/sec	40 KBytes/sec
WAN/LAN	160-800kbits/sec	20-100 KBytes/sec

<Source: Cleaner 5 Manual>

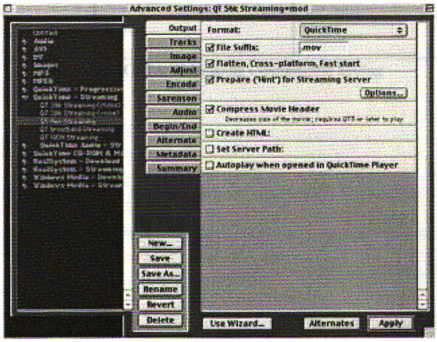
Table 7: Safe Data Rate

The data rate of LAN connections is a wide range and especially the condition of the university LAN shared by many users is not good. Because of this, the safe data rate for a university LAN is even lower than the minimum safe data rate of LAN. After I tried to compress video with several data rates, I ended up with 80 kbits/sec that is similar with safe data rate for dual ISDN for the fast connection and 35.6 kbits/sec for low connections. I chose Cleaner5 as a software for compressing and the Sorenson as a Video codec known as the best codec for Quicktime movies and Qualcomm PureVoice as an

audio codec. Qualcomm PureVoice is an ideal codec for KOSTA webcasting containing 100% human voice because even at bottom low bitrates, it produces good voice quality (Cleaner 5 Manual, 2001).

Due to the fact that the voice quality is as important as video lecture webcasting, I chose the full rate compression option which delivers 9:1 compression for high quality.

Movies appear darker on PC monitors than Macintosh monitors. Almost 100% of KOSTA webcasting users have PCs and I used a Macintosh computer for webcasting production. To compensate for this brightness gap between PC and Macintosh, I adjusted gamma and brightness of video to 30 and 15.



Picture 6: Cleaner 5 Compression Setting Window

	Slow connection	Fast Connection

Total data Rate	35.6 kbits/sec	80.0 kbits/sec
Video Size	192 X 144	240 X 180
Video Codec	Sorenson	Sorenson
Video Data Rate	26 kbits/sec	54 kbits/sec
Key Frame Every	75	100
Frame Rate	7.5 fps	10 fps
Audio Codec	Qualcomm PureVoice	Qualcomm PureVoice
Audio Data Rate	19.6 kbits/sec	26.0 kbits/sec
Audio Sample Rate	11.025kHz	22.050 kHz
Audio Depth	16 bit	16 bit
Audio Channel	Mono	Mono

Table 8: KOSTA Webcasting Compression Setting

Picture 7: Cleaner5 Compressing Window

- Event Streaming

One of the goals of my thesis is to suggest streaming video as an interactive tool that goes beyond traditional webcasting. Traditional webcasting simply broadcasts only a video or audio file that previously broadcasted on other media such as Television and radio on the web, and thus, a viewer cannot interact but can only watch. On the KOSTA webcasting website, a user can find more valuable information for themselves by using slides, hot spots and related links that are simultaneously synchronized with video. I chose Cleaner as the tool for assigning events to associated files that are used in my thesis

project. Cleaner is video compressing software by Discreet, one of the most popular digital video compressing toolmakers. Cleaner has the Eventstream Authoring function that quickly and effectively integrates video, audio, slides, images, and HTML into a single presentation. Using this function, I added the stream navigation function, which is a certain flow of streaming files. A respective lecture slide that contains texts, pictures, tables and images is presented simultaneously with the speaker's lecture on the video. In addition to this, useful links and interactive hot spots related to the lecture are embedded to help the user to get further information.

Through the Eventstreaming, a user can customize the contents of webcasting he/she views. Instead of being a passive viewer, he/she can actively choose slide materials through the slide menu and navigate web sites while watching the video.

Eventstream Process

Steps to create event streaming using Cleaner are: (1) Create a new batch by dragging and dropping a video file onto the batch window; (2) Open Eventstream Editor in the project window and then add new events by pressing the "Add" button.

Picture 8: Cleaner5 Event Stream Feature

Eventstream has event functions, such as Display Text, Chapters, Hotspots, Open URL, Go to Time, Replace Movie and Pause. But not all media players support all of these functions. Three major media players (QuickTime Player, Windows Media, Real Player) support different events.

	QuickTime Player	Real Player	Windows media
Chapters	X		X
Display text,	X	X	X
Go to time	X		
Open URL	X	X	X
Pause	X		
Replace movie	X	X	X
Hotspots	X	X	

<Source: Cleaner5 User Manual>

Table 9: Comparison Among Media Players

"What is the most popular media for the target audience?" is a very important factor in selecting a media. But, many criteria other than this in technology must be considered when choosing a media player. Due to the fact that most Koreans use PCs, and the Windows Media Player is pre-installed in the Windows system, QuickTime is not popular in Korea. I had planned to use Windows Media for my thesis, but I changed the media player to Quicktime Player because Windows Media did not work properly on the Macintosh platform. QuickTime Player is the ideal media player for Eventstream, because it supports all different kinds of events. Technically, it is recommended as the most powerful media player. I have neither access to Windows Media server nor funds to purchase. Accordingly, for the KOSTA webcasting, QuickTime was chosen. I changed at the last minute, and I could not conduct a detailed survey about these technical issues. I would like to suggest for future research how much impact the lack of popularity a media player has on the target user's watching behavior.

Hot Spots

I added up several hot spots on the video that users could use to open URLs related with lecture topics in the web browser. Different events can be assigned by the hot spot actions such as opening a URL, going to another time, playing or pausing the movie and replacing it with a different movie. Users can experience far more interactivity with the hot spots.

Chapters

Chapter events help a user easily access a different section of the video. When a user chooses one of the chapters in the chapter menu, it will lead to an automatic jump to

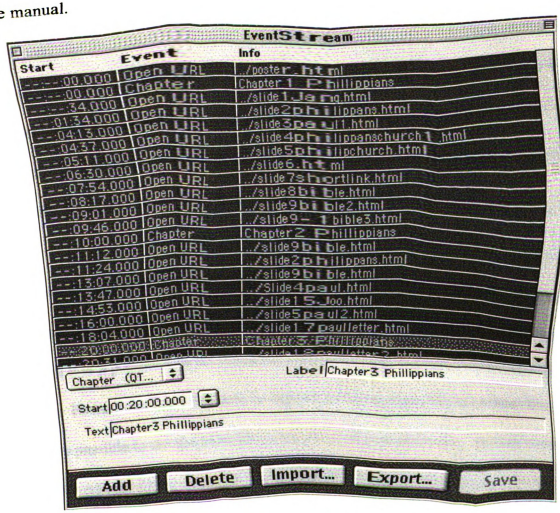
the specific time in the video - Through the use of the chapter feature, a user can customize the time order of lecture parts and experience interactive webcasting by more than passively watching the provided video by the producer. A user can choose the contents that he/she wants to see, and the time order of video that is the part they want to see sooner or later. This feature is especially ideal for a long video such as a presentation, course lecture, documentary or sermon. Among the three major media players such as QuickTime Player, Windows Media and Real Player, only QuickTime Player and Windows Media have the chapter system, which is different between the two media players. I didn't add up this function for several reasons. In the QuickTime Player, its chapter menu appears in the movie controller bar. But, the chapter menu is not distinguishable, and it is hard to recognize for a first-time user. The video size of KOSTA webcasting is small and the chapter menu was not displayed properly.

Replace Movie

Most of KOSTA lectures are about 60 minute long. Due to the huge file size of uncompressed 60-minute footage (about 40GB), there were many errors during encoding, compressing and even streaming. I edited a lecture into two 30- minute segments to keep the file size manageable and put a replace the movie event on the end of the first movie part. This function replaces the movie currently playing with another movie at the specific point on the timeline. By the replace movie function, KOSTA users can watch the following lecture automatically.

Display Text

I added captions, subtitles and other information related to the contents or how use the webcasting interfaces using the display text function as follows: "To visit the KOSTA homepage click on the video screen." "This is the end of the Philippians lectur 1-1. Philippians lecture 1-2 will be continued automatically." "You can see a slide by clicking the slide title on the slide menu." Displayed texts guided users to use interfaces and event features of KOSTA webcasting such as hot spots and replace the movie without the manual.



Picture 9: Cleaner5 Event Stream Window

Delivery

Initially, users needed to download the whole webcasting video and audio files before watching. Via streaming technology, it is possible to stream video in real time without downloading huge file size movies. Users can jump to any time point of the video to skip parts that they do not want to watch. Streaming is ideal for longer videos such as a presentation, course lecture, documentary or sermon. Due to the long length of video, I chose streaming for web delivery. Streaming videos use RTSP (real time streaming protocol) and RTSP servers such as a QuickTime Streaming Server or a Real Networks Server.

Future Technology Suggestions

1. Alternative tool for making dynamic webcasting presentation for non-professional, Microsoft Producer for Microsoft PowerPoint® 2002

Microsoft PowerPoint is a powerful tool to create dynamic and visually exciting presentations through various effects, such as animated page turns and slide backgrounds. Even though it is a popular tool for dynamic presentations, it poses certain concerns in webcasting. PowerPoint has a function to export a PowerPoint file to an html file. It is theoretically possible to use the html file as a source of Eventstream. We can export animated PowerPoint files to html files, and then, by using the Eventstream's Open URL function, we can synchronize the html file to streaming media to open the html page automatically at the certain time point of the streaming media.

Even though it has a powerful animation tool, I did not use PowerPoint slides, because of the file size issue - PowerPoint exports every single image used in animation as a different graphic file, such as a jpeg or gif file. This will cause the file size to be huge. Because of net congestion, one of the main technical limitations of webcasting is a big video file size for streaming in a Web browser and the reducing file size is one of the keys to success. And it is not a good idea to add video to other big size files.

Microsoft Producer can be another powerful tool to create dynamic webcasting presentations. Microsoft PowerPoint 2002 has Microsoft Producer as an add-in function to make it easy to capture, synchronize, and publish streaming media, text, slides, and images. The Producer for PowerPoint 2002 is expected to be used to create digital media marketing materials, online training, company wide broadcasts, and published archives of live presentations. The use of streaming media in corporations and education institutes is growing fast. But, one of the obstacles to using streaming media in organizations has been the lack of easy-to-use tools for creating contents. Until recently, webcasting production required specialized skills in content production, compressing and web delivery including knowledge about digital audio and video, image files, and codec, including html. The Producer has the powerful Wizard feature to help nonprofessionals capture and synchronize audio and video within their PowerPoint presentations to create rich-media presentations by a few mouse clicks (Microsoft, 2002).

I considered the Producer as a tool to make event streaming, but I did not choose it due to several reasons. Macintosh computers are known as a better tool for streaming media production. But until recently Producer only runs on the most advanced following

Window operating systems: Windows Office XP, Microsoft Windows XP Professional, Windows XP Home Edition, or Windows 2000 Professional (Microsoft, 2002). The other reason is that the Producer was just released and the initial troubleshooting period has not ended.

2. DivX™

There are three most popular media players: QuickTime Player, Windows Media, and Real Player. In addition to these three, DivX™ is recommended as the second-generation media player, which has the highest video quality level. DivX, created by DivX Networks, Inc., is based on a MPEG-4 digital video technology. Even though DivX has a small number of users compared to the other three media players, the reason I suggest it as a future webcasting technology is its premium visual quality. With a relatively small file size, video encoded with the DivX technology shows the highest quality digital video available now. Because of the premium visual quality, the number of users is growing fast. According to DivX Networks, Inc. over 30 million people have downloaded and have used the DivX technology since its launch. In addition, DivX is the most widely distributed MPEG-4 compatible technology available today. The MPEG-4 video compression standard can compress an MPEG-2 video down to about one eighth of its original size. The DivX technology has become more and more popular due to its compatibility with the MPEG-4 video compression standard (DivX Networks, Inc., 2002).

But DivX has several limitations. Video quality varies depending on a user's computer system, specifically a RAM size and connection speed. Lack of strategy with PC manufactures may be a problem. Windows Media is already installed in PC systems, but users need to download DivX to use it. Furthermore, it is not as easy as other the three major media players to get technical resources, which might help DixX users to do troubleshooting.

5. Conclusion

As a TV program producer, I have learned from experience that video production is a very delicate and complicated procedure demanding high professionalism. But I felt far more challenged in a webcasting production that requires other higher levels of technical knowledge and experience. The excessively numerous factors- such as video size, video/audio codec, video data rate, key frame, frame rate and so on- affect video and audio quality of the webcasting outcome. There was no other shortcut to find out the results of the factors that affect the outcome but to try it in person. There are many tips and guidelines about compressing and encoding but at the same time there are too many variations that affect webcasting to expect the close outcomes that general rules promise. Sometimes I was overwhelmed by the thousands of choices that I needed to try for better quality result and the time that I had spent on it. Furthermore, the limitation of bandwidth that sacrifices the video and audio quality was painful.

But, even after considering all the limitations and difficulties, the power of webcasting that was revealed when it combined with other multimedia was remarkable.

Creating interactive audio/visual presentations, integrating a set of independent multimedia objects together into a synchronized multimedia presentation, was a step beyond the limitations of traditional media that we could not even expect in the past. I believe that fast growing webcasting technology will bring to life what we cannot dream of even today.

CHAPTER III User Feedback

An evaluation of my thesis project was conducted by obtaining feedback from users who visited the site and agreed to participate voluntarily. On April 20, 2002, the KOSTA webcast was posted online. A paragraph on the main webcast page invited volunteers who were willing to offer feedback to click, view and complete an anonymous online survey about their reactions to the webcast experience. The feedback section was one of the component pages of the webcasting site. Each page of the webcasting site had a feedback button that lead to the feedback page.

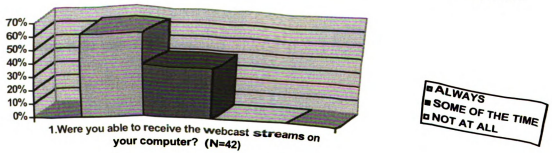
After exploring the KOSTA webcasting site, visitors to the site who elected to complete the anonymous online questionnaire clicked to read the informed consent statement as shown in Appendix A. The participants were informed by the consent form that they were be able to quit the questionnaire at any moment and the task answers would be kept confidential.

Visitors who consented jumped to the survey, where they could answer the questions. Only participants who pressed the button voluntarily saw the instruction

page at first, which contain information about the project and researcher. Participants explored the site in the same environments in which they normally explored the web. They used a computer of choice and spent time to explore the webcasting site as they usually do. No identifying personal information was collected, aside from typical demographic questions. Although the web server was capable of recording the IP address of visitors to the site, this information was not associated with the data. The investigator, Jiae Chun, collected all the data. The data automatically forwarded to an e-mail account and the data file containing a row of answers for each individual who completed the survey to the researcher for analysis. Links to the survey then were removed from the KOSTA webcasting web site.

1. Evaluation

1. Were you able to receive the webcast streams on your computer?

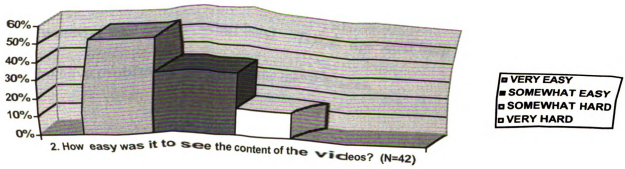


1.Were you able to receive the webcast streams on your computer? (N=42)

62% of participants answered that they received the webcasting stream but 38% answered some of times. Webcasting users experience the buffering frequently caused by net congestion. Because of the nature of data flow, even if the webcast provider have appropriate servers, it is not possible to get rid of overloaded or congested interchanges

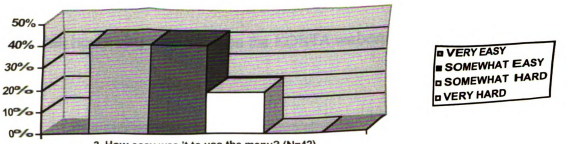
on the Internet routers at large. The fact that 62% were able to receive real-time streaming is very satisfying.

2. How easy was it to see the content of the videos?



85% of the participants said that it was very or somewhat easy to see the video content and 14% responded somewhathard.

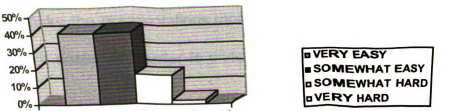
3. How easy was it to use the menu?



3. How easy was it to use the menu? (N=42)

80% of the participants felt that the webcasting menu was very or somewhat easy to use and 20% answered it was somewhat hard. Tool tips and help menu can be a solution to help users who have problems in using the interfaces.

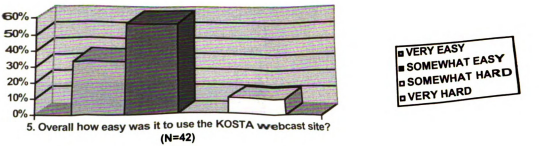
4. How easy was it to find the webcast for different sessions from the conference?



4. How easy was it to find the webcast for different sessions from the conference? (N=42)

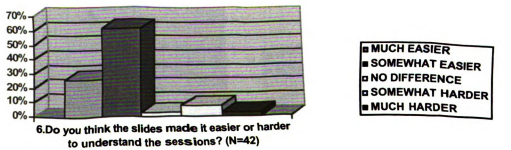
Even though I used a drop-down menu that is one of the most common menus and put a text "Choose lecture" on the menu for different sessions, 19% answered that it was somewhat or very hard to find difference sessions. I think that it is because most of participants prefer Korean and the menu was in English. English / Korean language options can be a solution.

5. Overall how easy was it to use the KOSTA webcast site?



90% of the participants answered that it was very/ or somewhat easy to use the KOSTA webcasting site overall.

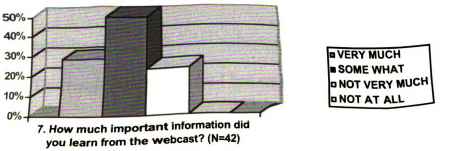
6. Slides that were not used in the original seminar were added to the webcast to make the presentations more understandable. Do you think the slides made it easier or harder to understand the sessions?



Through this thesis project, I tried to test webcasting as a dynamic presentation tool that integrates audio, video, graphics and text in a webcast format. The fact that 88% of the

participants responded that slides made the presentation more understandable shows that webcasting combined with other media can be a very powerful tool for presentations.

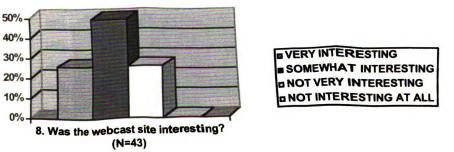
7. How much important information did you learn from the webcast?



7. How much important information did you learn from the webcast? (N=42)

89% of the participants answered that they learned important information very much or somewhat from the webcast and 24% replied not very much.

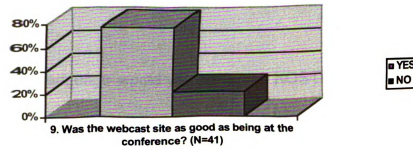
8. Was the webcast site interesting?



8. Was the webcast site interesting? (N=43)

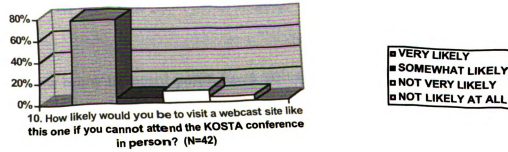
75% of the participants replied that the webcast site were interesting and 26% replied not very interesting.

9. Was the webcast site as good as being at the conference?



88% of the participants responded that webcasting was as good as being at the conference. This result is beyond what I had expected. Most users responded to this question even though they had not all attended the KOSTA seminar (See question 12). Some participants who did not KOSTA experience answered based on imagination not experience.

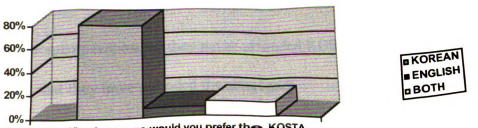
10. How likely would you be to visit a webcast site like this one if you cannot attend the KOSTA conference in person?



94% of the participants answered that they would like to visit a webcast site if they could not attend the KOSTA conference in person. The KOSTA USA seminar is held in Chicago only once a year, and because of this time and place limitation, many people who

desire to join the seminar fail to take part in it. As suggested above, the feedback survey results show that webcasting can be an ideal solution to overcome these limitations.

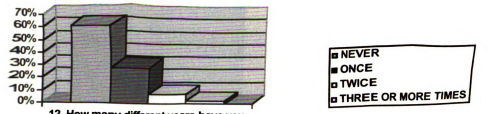
11. What language would you prefer the KOSTA webcast to use?



11. What language would you prefer the KOSTA webcast to use? (N=39)

According to comments on the end of the survey, participants did not feel comfortable with the English menu and they preferred Korean. I made menus in English only or in Korean/English because most of the public computers in the United States do not support Korean characters. KOSTA webcasting persona access computers at campus frequently and they will not be able to read the Korean only menu at all. Korean/ English versions will be very helpful for users who prefer either language.

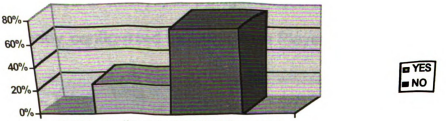
12. How many different years have you attended KOSTA summer seminars in person?



12. How many different years have you attended a KOSTA summer seminars in person? (N=42)

62% of the participants responded they never attended KOSTA summer seminars and 38% responded that they have attended the seminars.

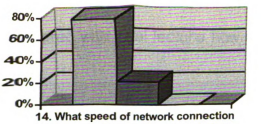
13. *Did you attend the 2001 KOSTA summer seminar in person?*



13. Did you attend the 2001 KOSTA summer seminar in person? (N=42)

As I suggested previously, webcasting can be an efficient tool not only for the people who miss seminars, but also for the seminar participants who want to view the lectures that they missed or want to view them them again. But the survey results show that KOSTA webcasting is more attractive to users who cannot join a seminar rather than seminar participants who want to watch it again.

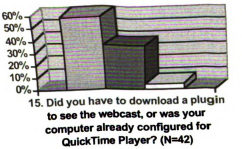
14. What speed of network connection did you use to view the webcast site?



14. What speed of network connection did you use to view the webcast site? (N=42)

I designed this site focusing on a hypothetical KOSTA webcasting primary persona who uses a fast connection when watching webcasting. The user survey results were matched with the primary persona. 79% of the KOSTA webcasting participants used fast connections.

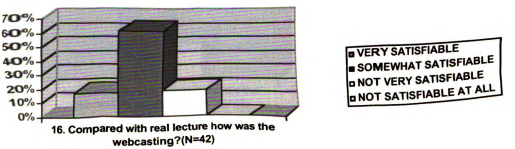
15. Did you have to download a plugin to see the webcast, or was your computer already configured for QuickTime Player?



15. Did you have to download a plugin to see the webcast, or was your computer already configured for QuickTime Player? (N=42)

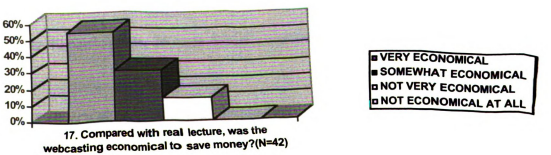
The two technical obstacles - connection speed and the required media player, QuickTime - were expected for accessing the webcasting. I expected that not many participants have QuickTime because due to the fact that most Koreans use PCs, and the Windows Media Player is pre-installed in the Windows system, QuickTime is not popular in Korea. But this survey result shows that 60% of participants already had QuickTime player.

16. Compared with real lecture how was the webcasting?



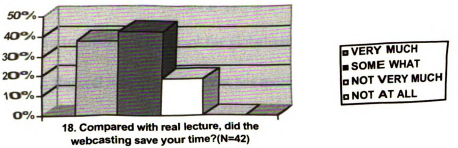
17% of participants replied compared with real lecture the webcasting was very satisfiable and 62% replied somewhat satisfiable. 19% replied that this site not very satisfiable. I could not conduct an usability test about why these participants were not satisfied. Usability test will be very helpful to improve the KOSTA webcasting site.

17. Compared with real lecture, was the webcasting economical to save money?



86% of participants answered the webcasting was economical to save money and 14% replied not very economical.

18. Compared with real lecture, did the webcasting save your time?



18. Compared with real lecture, did the webcasting save your time?(N=42)

I addressed that webcasting is an efficient education tool to save time and money. 86% of users responded that compared with the real lecture, the webcasting very or somewhat saved money, and 81% of users replied that the webcasting very or somewhat saved time.

19. WHAT IS YOUR AGE? (N=39)

Age of participants varied from 22 to 35.

20. WHAT IS YOUR GENDER? (N=40)

Among 40 participants, 26 were females and 14 were males

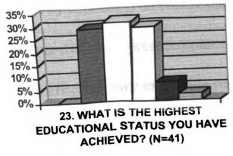
21. WHAT IS YOUR NATIONALITY? (N=39)

All participants were Korean.

22. WHAT COUNTRY ARE YOU IN, RIGHT NOW, AS YOU COMPLETE THIS SURVEY? (N=38)

Except 2 participants who were in Korea, all of the others were in the United States. Theoretically, people access the Internet from all over the world and the Internet can be a tool for globalization overcoming regional boundaries. But in the real world, the Internet has more impact for regional usage. Even though KOSTA seminars are well known to Korean students in many countries, I believe that most of KOSTA webcasting users will be Korean students who are in the United States.

23. WHAT IS THE HIGHEST EDUCATIONAL STATUS YOU HAVE ACHIEVED?



23. WHAT IS THE HIGHEST EDUCATIONAL STATUS YOU HAVE ACHIEVED? (N=41)

Most of the participant's education levels were graduate or higher. 29 % of the participants were attending a doctoral degree program, 32% completed a master degree, 29% were attending a masters degree program, 7% completed a bachelor program and 2% were attending a bachelor program.

2. Conclusion

The communication objective of this thesis project is to extend the KOSTA site to add a webcasting component (i) to provide an example webcasting site production of a possible business model based on the Michael Rappa's Community Model; (ii) to examine webcasting as a medium to deliver dynamic presentations; and (iii) to construct the ground work for webcasting as the efficient way to provide remote education. I addressed the first communication objective in the chapter one and two. To solidify KOSTA as an example of Rappa's Voluntary Contributor Community, I compared KOSTA with a real world webcasting company, called Onnuri Internet TV, in Korea in the chapter two.

On the survey I focused on communication objective (ii) to examine webcasting as a medium to deliver dynamic presentations; and (iii) to construct the groundwork for webcasting as the efficient way to provide remote education. Slides that were not used in the original seminar were added to the webcast to make the presentations more understandable. 88% of the users responded that slides made the presentation more understandable. This result shows that the re-creation of the KOSTA seminar video as a web-delivered, interactive presentation that integrates audio, video, graphics and text in a webcast format was effective. Through webcasting, users can reach KOSTA lectures whenever they want without the cost and trouble related with travel. 86% of users responded that compared with the real lecture, the webcasting very/somewhat saved money, and 81% of users replied that the webcasting very/somewhat saved time. KOSTA

webcasting achieved the goal to provide users an alternative way to experience events in ways other than attending the event in person.

Through this survey, I have learned that audience research is very important but difficult procedure. Many details I expected appeared not true and there were many obstacles to obtaining valid samples. Most of participants didn't write any comments on the text box and some skipped several questions. Some people complained that some buttons did not work well but those buttons always worked.

This is my first time in conducting survey research by myself. Many problems that I could not have even imagined happened during survey. As a novice, it's hard to handle these problems that I did not expect. I realized that conducting a survey requires higher levels of technical knowledge and experience than I expected. Furthermore, even though I fully recognize the importance of UCRHIS that protect the human right, the limitation of UCRHIS that I could not change research details after getting the approval was painful. But, even after considering all limitations and difficulty, the power of user research was remarkable. I could learn more greatly about users and designs than I expected.

APPENDIX A:

KOSTA Webcast Feedback Request for Informed Consent

The KOSTA webcast is part of Jiae Chun's MA Production Thesis in the Department of Telecommunication. Now that she has completed production of the webcast, the final step is to gather feedback from visitors to the site. She has prepared a 21 item online survey. It takes about 10 minutes to complete. Responses will be completely anonymous. Your answers to the questions will be stored electronically, with no link to any identifying personal information. When the results are analyzed, they will be reported in aggregate, summary form.

Collecting research data requires the informed consent of participants. This consent form is your opportunity to grant permission (or to decline to grant permission) to participate in the survey. You are free to stop participating and leave the survey at any time, and you are free to leave any question blank that you do not wish to answer. None of your answers will be saved until you reach the end of the questionnaire and click on the SUBMIT ANSWERS button.

If you have any questions about this study feel free to contact me,

Jiae Chun

Graduate Student

Michigan State University Department of Telecommunication

Email: chunjiae@msu.edu

or my thesis chairperson

Brian Winn

Assistant Professor of Telecommunication

Michigan State University

Email: winnb@msu.edu

If you have questions about your rights as a subject of research, please contact:

Dr. Ashir Kumar

University Committee on Research involving human subjects

Email: ucrihs@msu.edu

If you voluntarily consent to participate in this anonymous survey, please click on the appropriate button below.

At the end of the informed consent statement they can click on one of two buttons:

CLICK HERE TO BEGIN THE ANONYMOUS SURVEY

Or

CLICK HERE TO SKIP THE SURVEY AND GO BACK TO THE WEBCAST HOME PAGE

APPENDIX B:

Feedback Questionnaire

1. Were you able to receive the webcast streams on your computer?

   ALWAYS

   SOME OF THE TIME

   NOT AT ALL

2. How easy was it to see the content of the videos?

   VERY EASY

   SOMEWHAT EASY

   SOMEWHAT HARD

   VERY HARD

3. How easy was it to use the menu?

   VERY EASY

   SOMEWHAT EASY

   SOMEWHAT HARD

   VERY HARD

4. How easy was it to find the webcast for different sessions from the conference?

VERY EASY

SOMEWHAT EASY

SOMEWHAT HARD

VERY HARD

5. Overall how easy was it to use the KOSTA webcast site?

VERY EASY

SOMEWHAT EASY

SOMEWHAT HARD

VERY HARD

6. Slides that were not used in person were added to the webcast to make the presentations more understandable. Do you think the slides made it easier or harder to understand the sessions?

MUCH EASIER

SOMEWHAT EASIER

NO DIFFERENCE

SOMEWHAT HARDER

MUCH HARDER

7. How much important information did you learn from the webcast?

VERY MUCH

SOME

NOT VERY MUCH

NOT AT ALL

8. Was the webcast site interesting?

VERY INTERESTING

SOMEWHAT INTERESTING

NOT VERY INTERESTING

NOT INTERESTING AT ALL

9. Was the webcast site as good as being at the conference?

YES

NO

10. How likely would you be to visit a webcast site like this one if you cannot attend the KOSTA conference in person?

VERY LIKELY

SOMEWHAT LIKELY

NOT VERY LIKELY

NOT LIKELY AT ALL

11. What language would you prefer the KOSTA webcast to use?

KOREAN

ENGLISH

BOTH

12. How many different years have you attended a KOSTA summer seminars in person?

NEVER

ONCE

TWICE

THREE OR MORE TIMES

13. Did you attend the 2001 KOSTA summer seminar in person?

YES

NO

14. What speed of network connection did you use to view the webcast site?

ETHERNET/DSL/CABLEMODEM

56K DIALUP

28K DIALUP

15. Did you have to download a plugin to see the webcast, or was your computer already configured for QuickTime Player?

MY COMPUTER ALREADY HAD QUICKTIME PLAYER

I DOWNLOADED QUICKTIME PLAYER AND THEN COULD SEE THE WEBCASTS

I DID NOT DOWNLOAD QUICKTIME PLAYER AND I COULD NOT SEE THE WEBCASTS

16. Compared with real lecture how was the webcasting?

VERY SATISFIABLE

SOMEWHAT SATISFIABLE

NOT VERY SATISFIABLE

NOT SATISFIABLE AT ALL

17. Compared with real lecture, was the webcasting economical to save money?

VERY ECONOMICAL

SOMEWHAT ECONOMICAL

NOT VERY ECONOMICAL

NOT ECONOMICAL AT ALL

18. Compared with real lecture, did the webcasting save your time?

VERY MUCH

SOME WHAT

NOT VERY MUCH

NOT AT ALL

19. WHAT IS YOUR AGE?

TYPE HERE

20. WHAT IS YOUR GENDER?

FEMALE

MALE

21. WHAT IS YOUR NATIONALITY?

KOREAN

KOREAN AMERICAN

OTHER

22. WHAT COUNTRY ARE YOU IN, RIGHT NOW, AS YOU COMPLETE THIS SURVEY?

UNITED STATES

FRANCE

ITALY

RUSSIA

CANADA

AUSTRALIA

JAPAN

TAIWAN

KOREA

OTHER

IF YOUR COUNTRY IS NOT SHOWN ABOVE,PLEASE TYPE IT HERE

23. WHAT IS THE HIGHEST EDUCATIONAL STATUS YOU HAVE ACHIEVED?

COMPLETED DOCTORAL DEGREE

ATTENDING DOCTORAL DEGREE PROGRAM

COMPLETED MASTERS DEGREE

ATTENDING MASTERS DEGREE PROGRAM

COMPLETED BACHELOR'S DEGREE

ATTENDING BACHELOR'S DEGREE PROGRAM

24. DO YOU HAVE ANY COMMENTS OR SUGGESTIONS TO HELP IMPROVE FUTURE WEBCASTS?

When you have completed the survey, please click the button below to submit your answers.

SUBMIT MY ANSWERS

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