How Computer Technologies Might be Used to Foster Professional Development: A Case Report of www.perfusionkorea.org

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Abstract: Advances in the Internet and communication technologies have enabled many perfusion-related websites to provide detailed and reliable information to perfusionists. However, these websites are also faced with various user needs that require updating for fast, flexible responses. Despite the rapid increase in the number of these websites, little is known about the structure, performance, and effective utilization methods of such websites. This case report examines the www.perfusionkorea.org, a virtual organization that works across space and time with links strengthened by webs of communication technologies. In addition, website maintenance and resource management tasks, which are important factors for long-term survival, are discussed using the log analyzer and internet protocol tracing programs. Finally, using www.perfusionkorea.org, as a prototype of virtual organization activities, what we can expect to see more commonly in the near future, is discussed. Although we used a tremendous amount of multimedia techniques to attract members, we found that the significance of the perfusionists’ website would come from active participation of members rather than a new, complicated technology or eye-catching graphics. This case report shows the synergistic effects that Korea’s application of the Internet to the field of perfusion. It also suggests that new methodological strategies and approaches can be developed and tested to provide perfusionists with a direction for tomorrow’s health care system. Keywords: Internet, communication technologies, perfusion websites, www.perfusionkorea.org, virtual organizations.

OVERVIEW

Korean Perfusion Society

The annual statistics of the Korean Society of Thoracic and Cardiovascular Surgery shows that more than 120 perfusionists are working in 50 different hospitals and performing approximately 9000 open-heart surgery cases annually. Most of the perfusionists have previous experience in such medical areas as operating rooms or intensive care units, clinical pathophysiology labs, or biomedical engineering departments. (4) Currently, there is no accredited perfusion school in Korea. The legislative process for perfusion certification is impeded because of a lack of proper understanding of our profession. Perfusion training in Korea is still directly linked to the workplace. Many in-service training programs have a clear goal to meet the
manpower and specific skills within the operating room. (5, 6) After accomplishing their basic training (about 6 months to 1 year), most perfusionists continue their own independent study through journal review, weekly cardiac conferences, semiannual surgery conferences, and perfusion meetings.

The official perfusion organization, Korean Society of Extracorporeal Technology (KoSECT) was founded in 1986 to unite Korean perfusionists and to standardize both training and professional status. The KoSECT is vigorously working toward certification, education, and other issues pertinent to both the society and the profession.

The Blooming Internet Culture in Korea

When first introduced into Korea, the Internet was regarded merely as cyberspace, far from the real world. However, Korea has experienced its practical power, which affects our real living, particularly in the educational sectors. Many Internet venture companies and the demand for fast Internet service with high quality has been growing. For the past 5 to 6 years, Korea has developed fast broadband services and advanced Internet infrastructures. In 2001, broadband caught on twice as fast in Korea than in Canada, which has the second highest broadband penetration. The number of users nationwide is projected at 23 million, or half the nation’s population. (7) In Seoul, there are between 15,000 and 20,000 Internet cafés, which all have broadband service, and cost about $1/hour for consumer use. (8, 9) There is growing demand, responsive supply, and appropriate government policy, which create synergism to prompt explosive growth. (10)

Internet and KoSECT

The fast-growing Internet industry brought a significant transition to the Korean perfusion society. In June 2001, Won yon-sung, a senior perfusionist, opened the homepage of KoSECT. About 80% of Korean perfusionists joined KoSECT. As a result of the cyber organizational activities, KoSECT shed its decades-long passive behavior. KoSECT held the first official educational meeting that same year. The meeting was a success. A second meeting was held that same year, and there have been biannual meetings since that time. The members have an opportunity to interact face-to-face and strengthen their unity. The members have become more involved in the organization and take practical action dealing with pending problems.

CASE REPORT

Although the KoSECT homepage, started by Won yon-sung, was the first perfusion web site in Korea, because of lack of financial and technical support, it could not have its own server or original computer programs. It belonged to a commercial web site and included many irrelevant commercials and banners.

The www.perfusionkorea.org was originally started from the perfusion department homepage of Ajou University Medical Center in 2001. It was the first, independently built perfusion website, which was hosted by the perfusionist. It had its own computer servers, developed many computer programs, and used fast broadband service. After extensive updating, it became the major perfusion website in Korea. This is a World Wide Web site for perfusionists, allied health professionals, students, manufactures, and the public. This web page is a nonprofit organization, which is designed, built, sponsored, and managed by the author and two computer programmers. The web page provides comprehensive, web-based information and forms a unique electronic community of perfusionists. Sections of www.perfusionkorea.org are:
1. What is perfusion?
2. Perfusion in the world
3. Perfusion resources
4. How to speak
5. Multimedia resources
6. Bulletin Board and instant message

What Is Perfusion

This section explains what perfusion is, what perfusionists are doing, and the scope of perfusion practice. This section also explains the brief history of cardiopulmonary bypass (CPB) and the first perfusionist. The aim is to give simple and clear information about perfusion practices and to enhance professional perfusion images to others.

Perfusion in the World

It is intended that www.perfusionkorea.org members will be well informed and have well-balanced opinions of perfusion practices throughout the world. There are thousands of perfusionists all over the world, many working in vastly different and sometimes difficult environments. As KoSECT members, an opportunity to interact and share experiences with other perfusionists around the globe would be a powerful source of encouragement. This type of collaboration could prove beneficial, both personally and professionally.

It talks about foreign perfusion societies and their goals and current activities. This site also gives members and visitors a medium to share interesting stories on a monthly basis in both Korean and English.

Perfusion Resources

This section includes;
• Summarized Korean translation of major textbooks
• Korean summaries of perfusion journals
• Hospital protocols
• Multimedia resources

All of these have either original content or hyperlinks to other websites. It includes the Linux-based search engine, which enables the user to find specific topics, illustrations, or animations on the Internet.

How to Speak
Many Korean perfusionists show a great deal of interest in other perfusion societies around the world and are eager to communicate with each of them. However, because English is not our native tongue, we have difficulty conversing in the English language. This section helps Koreans learn how to speak proper English. It also includes useful expressions for perfusionists, such as perfusion issues, perfusion equipment and practices, patients’ conditions, and various clinical cases.

Multimedia Resources
This section includes images, flash animations, video clips, and other multimedia information. This section also shows video clips of the speakers and perfusionists from domestic and international perfusion conferences.

Bulletin Board and Instant Message
There are two bulletin boards: one for perfusion issues and the other for general topics. Using the instant message tool, members can send messages to other KoSECT members for immediate response.

DISCUSSION

Quality Assurance
Unfortunately, there is a disadvantage to information obtained from the Internet. Some information should be regarded simply as perfusionists’ opinions and experiences. This could possibly present an excellent opportunity to discuss new products and practices and to request further information. However, these must be distinguished from established theories and published, peer-reviewed results. (11) Initially KoSECT members were concerned that this type of misinformation would dominate and supplant serious scientific knowledge because of its interesting features and easy accessibility. To compensate, members took a complementary measure to ensure the quality of the information on the website. Members used the peer review method, which is the best standard for scientific communication. The peer review process verifies whether uploaded information is based on accurate references taken from published literature. This allows us to ask others questions and make suggestions to clarify the main issue.

Website Maintenance and Resource Management
Website maintenance and resource management tasks are important factors for long-term survival of the website. For these, the log analyzer and the IP tracer are used. The log analyzer is a computer program that checks individual characteristics, such as log-in time and frequency, which pages received the most and/or fewest hits, which information was most frequently downloaded, and any technical difficulties that may have occurred. In addition to registration information such as sex, age, profession, and nationality, the webmaster can obtain comprehensive user information to determine user needs and estimate future directions of the website. This website is also username and password protected. With IP tracing programs, unauthorized IP address access will be immediately terminated. The log analyzer and IP tracing programs make the www.perfusionkorea.org more interactive. Also, through the updating process, the www.perfusionkorea.org can evolve spontaneously.

The www.perfusionkorea.org: A Prototype of Virtual Organization
Lipnak and Stamps (1997) defined a virtual team as “a group of people who interact through interdependent tasks guided by a common purpose that work across space, time, and organizational boundaries with links strengthened by webs of communication technologies.” (11) By this definition, www.perfusionkorea.org can be identified as a virtual organization. Perfusionists can meet at www.perfusionkorea.org any time of day, regardless of time and geographical limitations. They are bonded by a common goal and voluntarily come together to advance perfusion practice on an ongoing basis. They communicate and coordinate their work through computer technology. Also functioning as an effective tool for continuing education, www.perfusionkorea.org facilitates member’s participation and promotes professional development.

CONCLUSION
Although a tremendous amount of multimedia techniques were used to attract members at the start of the web page, it was found that the perfusionists were attracted to active participation of members rather than a new, complicated technology or eye-catching graphics. This case report shows the synergistic effects of Korean Internet applications to the field of perfusion. It also suggests new methodological strategies and approaches can be developed and tested to provide perfusionists with future directions in the health care system of tomorrow.

REFERENCES