

Overview of Electronic Communications in Schools

Students may now send emails to their overseas friends for greetings instead of writing letters, “meet” their classmates in the cyber world via ICQ, in addition to in their school. Nowadays in the modern world, email and ICQ are common computer-based electronic communication, which provide a new way for human communication, information exchange, work collaboration, and many more.

However, through the electronic communications, students themselves may be easily exposed to inappropriate materials. It is important for schools to educate their students to raise their awareness of IT security, especially in the Internet world.

About this Document ...

This document aims to introduce to schools the following common forms of electronic communications:

- Email
- Instant Messaging
- Discussion Forum
- Calendaring and Scheduling
- Video Conferencing

Target readers of this document are principals and teachers who want to have a general concept on the above applications.

Email



Among the various forms of electronic communication, email is the most common one. Email is the short name for “Electronic Mail”, its name actually tells how it operates – similar to traditional mail but in an electronic way.

In using email, an email software tool has to be installed on the computer. Senders type in messages under such tool and send them over the internal computer network or the Internet to recipients. The messages will be stored and kept in the recipient’s mailbox in an email server. The recipients can retrieve and read the mail(s) on their own computers at any time.

A very powerful feature of email in communication is that sender may attach computer files to the email messages. Hence image files, documents, spreadsheets, sound and video clips, etc. can be passed to the other people easily. However, to save transmission time and charges, it is advisable to compress the relevant files with an archive utility, such as WinZip before attaching the files to the mail.

In general, email is fast and reliable. Even if the message is sent over the Internet to overseas, the recipient will receive it in a short period of time. Messages seldom have been lost during the delivery, though nobody can guarantee the service level. Some email systems further enhance the reliability by providing services like “return receipt”, which allows the sender to get a receipt automatically when the recipient reads the message.



Subject to students having their own Internet account, schools may encourage students to use email to ask questions, express opinions, submit homework, etc. Teachers may send emails to remind students the deadline for submission of assignments, the necessities to be brought to the lesson, any upcoming events, etc. Parents, teachers and principals may also discuss the issues/problems of their students through email. Communication via email is becoming more common and important.

Legal Recognition of Email

Emails can even be recognized as legal documents, if appropriate security measures are implemented, in accordance with the Electronic Transaction Ordinance (ETO) enacted in January 2000.

There are various options for schools to implement email services on their school networks:

Using Free Email Services

Some web sites provide free email services to their registered members. It is the easiest way for schools to implement using

email services. Schools can ask students to register and get an email account on these web sites.

Each free email account will be provided with a limited free storage space on the provider's server in which all the received emails are kept. Students can read and send emails on the provider's designated web pages through a web browser, just like browsing any other web pages on the Internet.

The following are examples of some of the providers:

- webmail.school.net.hk/src/login.php
- www.hkedcity.net/idesk/index.phtml
- mail.yahoo.com
- www.hotmail.com

Setting up School's Own Server

Schools may consider setting up their own email servers. There are various products available in the market. Besides, free email servers are also available for download in the Internet, such as:

- Microsoft Exchange Server
- Lotus Domino Server
- Linux Sendmail Email Server (free for download)

Most of the market products are integrated packages providing other electronic communication services in addition to email.

Instant Messaging

Many people have no idea about the term "Instant Messaging". However, most people know the word "ICQ". Actually, ICQ is the most popular Instant Messaging product in the market.

Some of the students have experience in "playing" ICQ overnight. What so attractive does ICQ have? When students are using the Internet for web surfing, sending emails, etc., they may find themselves to be lonely and isolated. But with ICQ, they can feel the presence of the others, playing, working, and communicating with others.

The ICQ client software is free for download from the Internet. When users install ICQ on their computers, they will be asked to register on an ICQ server on the Internet. Once registered, each user will receive a unique ICQ number, which is used as the identity for communication with others. Each ICQ number is associated with a contact list. The people on the contact list will be notified once the ICQ number owner logs on to the Internet. A user may add his/her friends' ICQ numbers to the contact list and on the other hand, ask his/her friends to add his/her ICQ number to their contact lists.



Free Email Services vs School's Own Server

When deciding the implementation option for electronic communication applications, schools may consider the following:

- For using free email services, schools need not pay any effort on the implementation and administration of the service. However, schools have no control over certain important areas like service level, security, data privacy, the kind of materials and people that the students may encounter. Though the free email servers are usually protected with certain security measures, tracked record shows that some web sites are doing better in providing a quality service. However, nobody can guarantee the service level and the security under such free service. Regarding the students' companionship, it is more important for schools to educate their students on IT security when allowing them to use the free email services.
- For schools having their own email server, schools can get a better service in security, account administration, resources sharing, etc. comparing to using free email services. Schools will also have better monitoring on the materials to be posted and the people to be participated in the electronic communications. However, the products require more technical skills and efforts in the setup and administration, for example, the creation and maintenance of user accounts, the regular backup of data, the prevention of virus infection and the implementation of secure Internet connection. If schools choose to use freeware for the email services, they should note that the technical support for freeware from the suppliers is always limited.

When a user connects to the Internet, he/she will know which friend on the contact list is also online. He/she may then chat, email, send messages, exchange files, work on the same applications, etc. with these friends. The system also enables the user to know immediately when another friend later joins and connects to the Internet.



Many students work on the computers using instant messaging. If there are inter-school activities, instant messaging can surely encourage and facilitate the communications between students from different schools.

How instant messaging works?

Once installed with the default settings, the instant messaging software runs in the background each time the computer is started. The software only consumes very limited resources and will not disturb any other applications in use. When the user logs on to the Internet, the instant messaging software will automatically detect the Internet connection, announces his presence and alerts his friends who were current on-line.

Home users usually enjoy instant messaging through the public services. The following shows some examples besides ICQ:

- MSN Messenger
www.msn.com
- Yahoo Messenger
messenger.yahoo.com

Schools may also allow students to use public instant messaging services on school network. However, if most of the communications are within the school network, schools may consider implementing a private instant messaging server. ICQ GroupWare Server is one of the examples in the open market.

Discussion Forum



Access to the Internet when outside School Campus

Students can easily access the Internet at home if they have their own computers and the subscribed Internet connection services from Internet Service Provider (ISP). The other students may apply to lend notebook computers from their schools under the Digital Bridge project. Other than these, students can always use the public computer facilities in community centers, youth centers, public libraries, Community Cyber Points, etc. to access the Internet.

Discussion forum, commonly known as newsgroup, is another popular form of electronic communication. As from its name, it facilitates discussion on a particular topic in an electronic way.

Users may connect to a discussion forum using either a software tool called newsreader or a web browser. Indeed more and more discussion forums now provide a web interface. Users can access the forums in the same way as browsing a web page. In the discussion forum, users can read the messages, give responses or even add a new topic for discussion.

Topics	Author
<input type="checkbox"/> seeking advice new	N.F
<input type="checkbox"/> which part do you think easlier new	chengpigpig
<input type="checkbox"/> how to start the talk in AL oral exam (par one) new	cindy
<input type="checkbox"/> and/or. in/on etc. new	Nancy Tse
<input type="checkbox"/> RE: and/or. in/on etc. new	Simon
<input type="checkbox"/> hey new	les
<input type="checkbox"/> which one is correct? new	wing
<input type="checkbox"/> RE: which one is correct? new	Simon
<input type="checkbox"/> How to write good minutes (Indirect speech) new	Louisa
<input type="checkbox"/> RE: How to write good minutes (Indirect speech) new	Simon
<input type="checkbox"/> new	Ghost
<input type="checkbox"/> thanks! new	Ching
<input type="checkbox"/> RE: thanks! new	Simon



Schools may encourage students to raise questions and/or express their findings on a particular topic through discussion forum. Teachers can also consider participating in the discussions. Discussion forum is good for knowledge sharing and it may also serve as a bulletin board for message posting and public announcement.

Similar to email, schools may set up their own newsgroup servers or use public services for discussion forums. There is also free discussion forum software available for download from the Internet. The followings are some examples:

- HKeducationCITY (public services)
www.hkedcity.net/english/icomunity/forum/
- DNEWS Web-based News Server (market product)
- Microsoft NNTP Service (bundled with Windows NT/2000)

When using the public discussion forums, schools have no control on the materials posted at the forums. Students may be exposed to inappropriate materials that are sexual, hateful, etc. To have a better control, schools may consider implementing its own server with access controls and security measures. Some of the web sites allow the users to create a private discussion forum for discussion within a group of members, my.yahoo.com is an example.

Calendaring and Scheduling



Calendaring and Scheduling is an essential form of electronic communication for group collaboration. For personal use, it is a good electronic diary.

Many web sites provide free calendaring and scheduling services to registered members. For example:

- HkeducationCITY Calendar
www.hkedcity.net/idesk/index.phtml
- Netscape Calendar
calendar.netscape.com
- Yahoo Calendar
calendar.yahoo.com

When users log on to use the calendaring and scheduling services, they will be presented with a calendar. On the calendar, they can add events to the spaces below the scheduled days, just like writing down a reminder on the traditional diary. When adding an event to the calendar, users may specify the date and time and the list of email addresses to be notified. For example, if an IT club meeting is to be held on 26 November, the secretary adds this event to its calendar and specifies sending a reminder to all the members on the day before the meeting.

The public calendaring and scheduling

services usually provide the functions of calendaring, address book, to-do list and web-based email account. In addition, it allows the users to publish a read-only version of their own calendars online for others to read.



Schools may use the calendaring and scheduling services on various areas, for example:

- remind teachers and students for the upcoming events
- inform parents about the examination schedule of their children
- facilitate the promotion of extra-curricular activities

These public services generally do not allow the calendar to be updated by a number of users. If such function is required for group collaboration, schools may consider setting up their own servers. Each user can have its own user account and each account can be assigned with different rights to update and view the calendars. WebEdge Calendar is one of the calendaring and scheduling products available in the market.

Video Conferencing



Video Conferencing allows the face-to-face meeting between two or more users at different locations through computer network.

In video conferencing, the voice and image of one participant, captured by the microphone and video camera will be carried over the network to the others' speakers and monitors respectively. The users at different locations can discuss with others as if they were sitting in the same conferencing room.

Video conferencing is a bandwidth

Online Chat

Instant messaging and video conferencing applications usually come with an online chat function. Online chat allows two or more users to have a text-based real-time conversation over the internal computer network or the Internet.

A user may request the other online users to chat with him. If the others agree, both of them will have a window divided into two sections, with one section for typing one's own messages and the other section for showing the responder's messages. The messages typed in on one side will be shown on the other side immediately. Other users may also join the chat and the window will be divided into multiple sections accordingly.

demanding application. The amount of bandwidth required is depended on the screen size and the quality of the video. In general, Fast Ethernet is sufficient for supporting users to have video conferencing concurrently within the school network, while broadband connection is good for several users to have video conferencing over the Internet at the same time, with a medium to low picture quality.

Video conferencing products usually provide additional functions like online chat and file transfer. Participants can use these functions to improve communication during the conference.



Schools can use video-conferencing for both intra-school and inter-school activities such as discussion, experience sharing on scientific experiments, debate, etc.

Various free video conferencing applications are available, such as:

- Microsoft NetMeeting (bundled with Microsoft Internet Explorer)
- CuseeMe
www.cuseemeworld.com

Schools should note the requirement for

network bandwidth when implementing video conferencing service. As a first step, schools may install video conferencing kit (camera, microphone, speakers and the capture cards) plus free video conferencing applications on two computers on the school network. Video conferencing can then be enabled on these two computers through point-to-point communication. For video conferencing over the Internet, schools may use the bundled NetMeeting software in Microsoft Internet Explorer to connect the public NetMeeting servers.

Summary

As schools already have their network infrastructure and services in place, the electronic communication applications mentioned above can easily be implemented on the school network. Schools may consider further utilizing the existing resources to help teachers and students get better prepared for the information and technology era and enjoy the benefits brought about by the emerging technologies. On implementation, schools should be aware of the IT security, especially when students are using the services on the Internet which may contain inappropriate materials.

Security

When implementing the electronic communication applications, schools should review to strengthen their existing IT security controls with respect to Internet connection (e.g. firewall and proxy configuration), access control, etc.

Besides, students are particularly at risk when they participate in the electronic communication regarding companionship. They may be exposed to inappropriate materials that are sexual, hateful, or violent in nature. They may be misled by someone to participate in activities that are dangerous or illegal. Misconducted persons might use e-mail, bulletin boards, or chat rooms to gain student's confidence and then arrange a face-to-face meeting that could risk students' safety.

It is, therefore, important that schools should educate students to raise their awareness on IT security. Besides, students may use these services at home. Hence, parents are advised to stay in touch with what their children are doing in the Internet world. Schools and parents may refer to the followings for more information:

- Web-based Training on Information Security
www.info.gov.hk/digital21/chi/ecommerce/pki/wbt/flash/ITSecuWBT.html
- How to Keep your Child Safe on the Internet
www.info.gov.hk/police/hkp-home/english/tcd/childsaf.htm
- Users of Small Computer Systems
www.info.gov.hk/police/hkp-home/english/tcd/sms.htm
- IT Security in Schools
[202.64.213.147/ited/Support_Service/TSS_Ref/IT_Security_in_Schools_\[Nov_05\].pdf](http://202.64.213.147/ited/Support_Service/TSS_Ref/IT_Security_in_Schools_[Nov_05].pdf)