

Integrated Learning with Podcasting Import and Export in the Gong System

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Abstract

We first provide a brief introduction to the Gong system, available free for non-profit use from <http://gong.ust.hk>. We introduce current features of the system and provide some indications of how they may be used to enhance learning. We then describe new features of the Gong system to be supported in the forthcoming release, version 6. This version will include the ability to broadcast any voice board in the system as a podcast, with no extra effort required by Gong users. Furthermore, the Gong system will support the import of any podcast. This provides an easy way for learning materials to be taken into the system. Such materials can then subsequently operate as a regular Gong voice board, and can be repeatedly played, commented on by students and staff, indexed for advanced content access, and so on. It is anticipated that these features will greatly enhance the usefulness of the Gong system for learning.

1. Introduction

We have developed a system called ‘Gong’ designed primarily for web based learning. Released free to the world at <http://gong.ust.hk>, the system can be used to complement or, in some situations, to replace face-to-face learning.

In the following sections we provide a brief overview of the Gong system, followed by a look at the current integration features it supports as well as new Podcasting features to be included in the next release.

2. An Overview of the Gong System

The Gong system is designed primarily for audio-related communication. An example screen display of the Gong system is shown in figure 1. A list of recordings made by students and teachers is shown. Any recording can be heard by simply clicking on it.

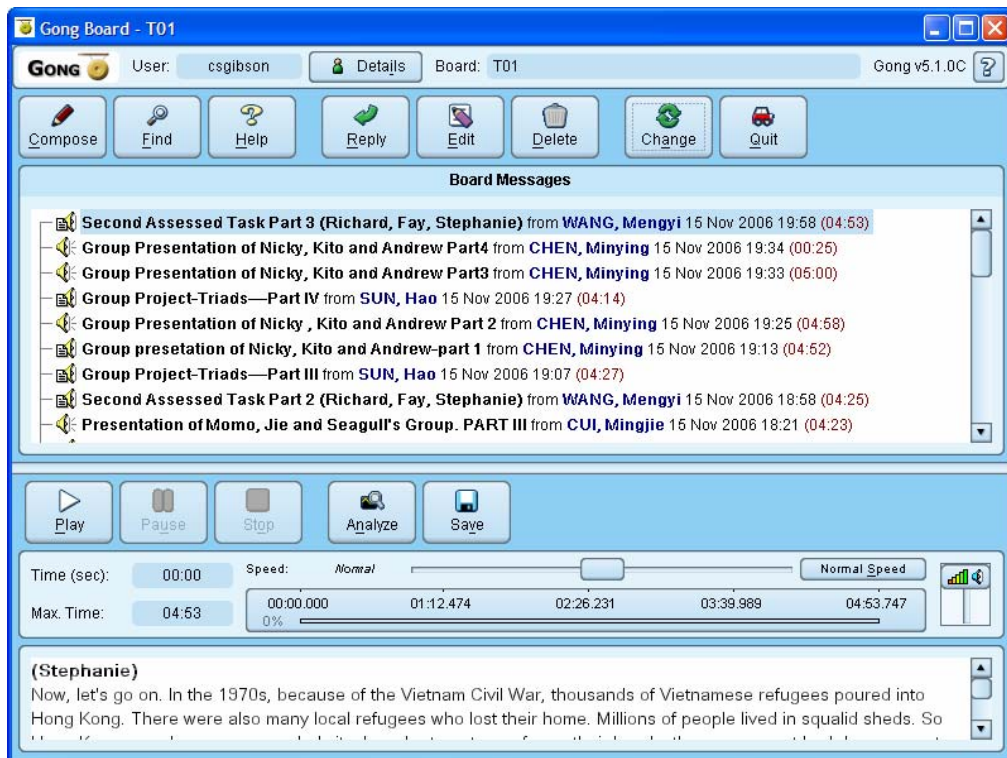


Figure 1. An example of a Gong voice board being used to store synchronous voice recordings.

In the following sections we provide an overview of primary Gong features.

Hierarchical board organization. Gong voice boards can be created in a hierarchical structure. For example, a course may be divided into several sections or groups, with students in each group being allocated a board. An example is shown in figure 2. Students and teachers can chat together on the boards assigned to them, and if appropriate can have access to, and reply to, the messages recorded on other boards.

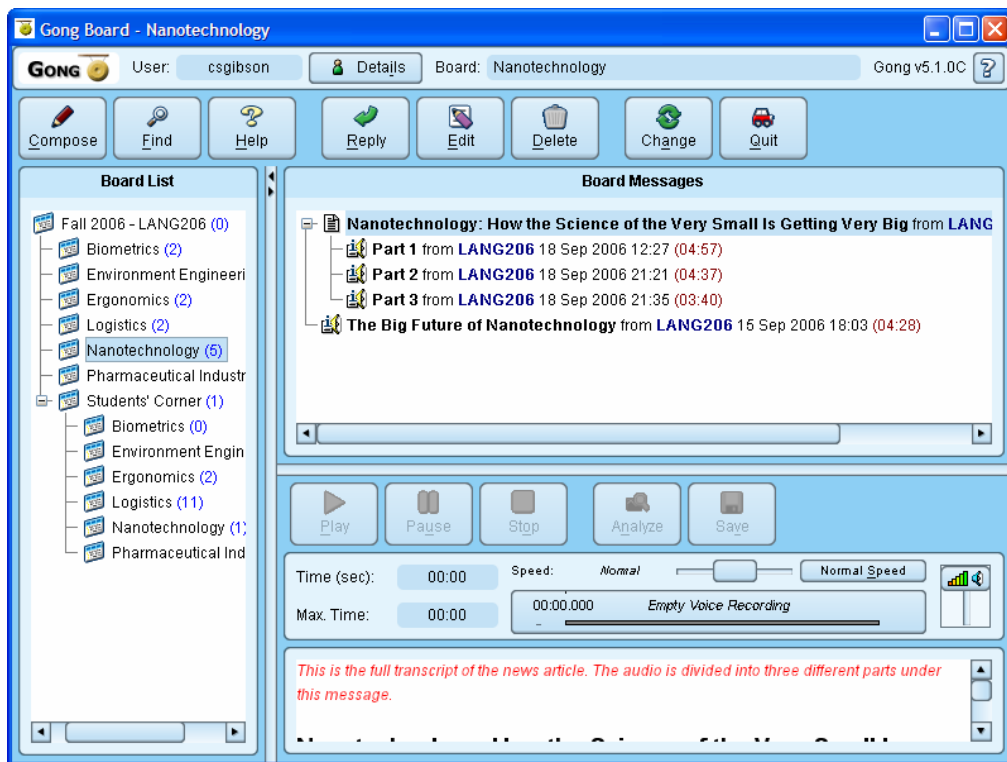


Figure 2. An example of the display of multiple voice boards in Gong. In this example it can be seen that there are six different voice boards under the branch called 'Fall 2006 – LANG206', as well as an area called 'Students Corner' which contains six more boards. On the right hand side the messages are shown for the currently selected voice board, which is 'Nanotechnology'.

Real-time text/voice chat. Gong supports synchronous and asynchronous audio communication. Using the system students and teachers may form groups and chat in real-time over the Internet. The chat is configurable. For example, you can choose whether or not to use text chat and/or audio chat, and whether or not to record the chat. The GUI used to begin a chat session is shown in figure 3.

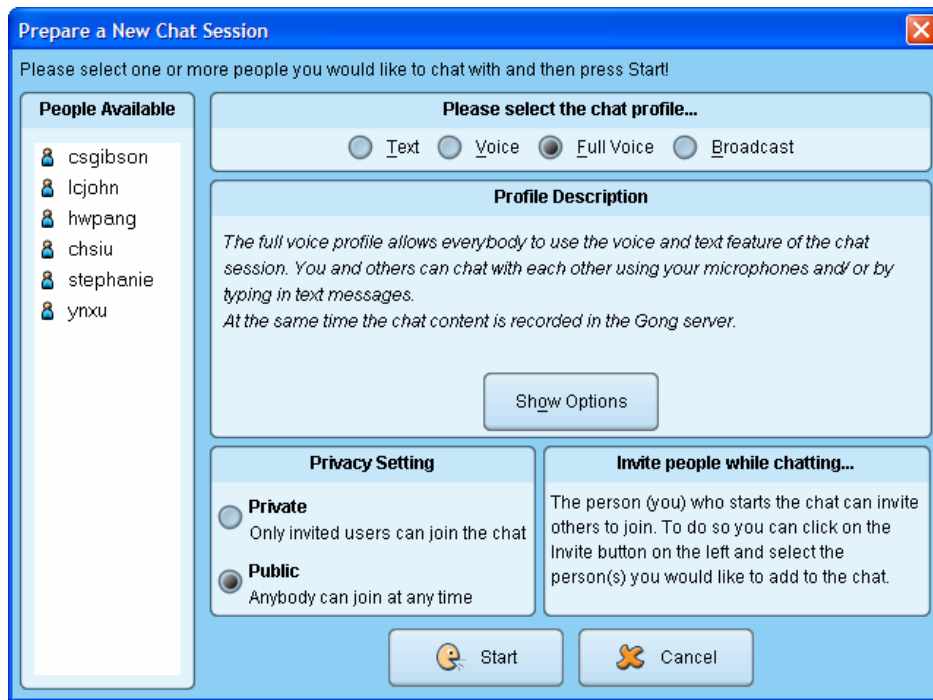


Figure 3. The Gong interface for beginning a chat session. Different types of chat include text only, voice only, both combined, and a 'broadcast' mode where a teacher can broadcast to a whole class of students in real-time, in a 'radio' style of communication.

Audio manipulation and indexing. Once recorded, there are further facilities for audio manipulation. For example, any voice recording may be edited using the built-in editor. Furthermore, the speed of audio being played back may be slowed down or sped up without altering the pitch of the sound [1]. If the text component of the message matches the audio recording then the message can be automatically indexed, enabling individual word highlighting during playback, and individual word/phrase selection. This is illustrated in Figure 4. These features greatly facilitate language learning in particular.

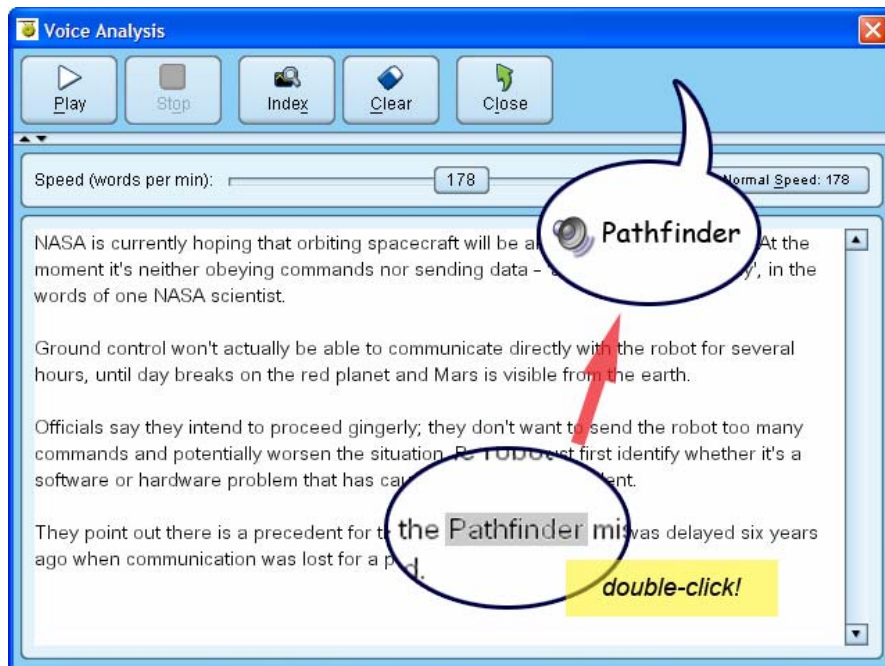


Figure 4. An example of using the Gong system to selectively play a single word in a sentence. One way to do this is to double click on a word. The system then plays that word, using the recording attached to the message. The sound comes from the original voice recording; no voice synthesis is used in the system.

Multi-lingual support. Gong provides support for multiple languages in three ways.

- 1) Firstly, the user can enter almost any language into a text message, and record any language for the message using a microphone.
- 2) Secondly, the user interface of the Gong system can be displayed in several different languages. At the moment, five sets of languages are available for selection: American English, British English, Japanese, Traditional Chinese and Simplified Chinese.
- 3) Thirdly, special support has been developed for two 'learning languages'. These are the Pinyin language for learning Mandarin, and the Yale language for learning Cantonese [2]. For example, users are able to enter Pinyin words using a special input system, and see them displayed using either the visual display of tone structures or the Pinyin number system. In figure 5 an example message is shown being created which uses multiple languages, including Pinyin words.

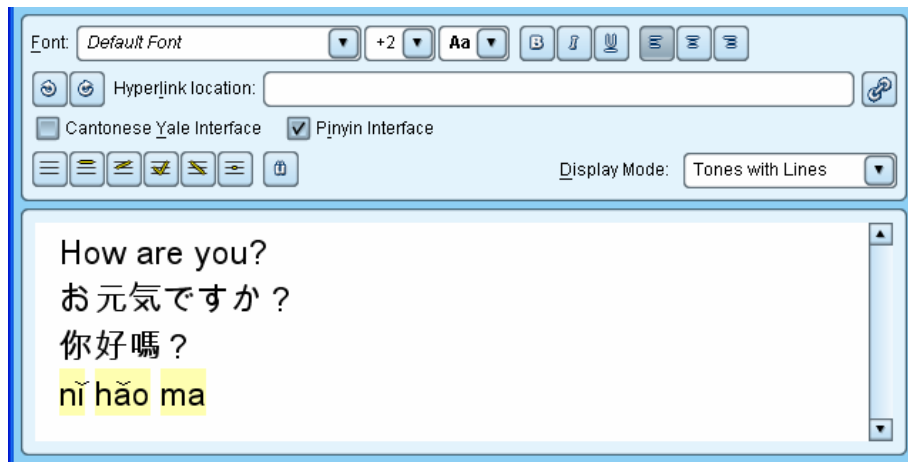


Figure 5. An example of a message being created in the Gong system which contains an English expression (top row), the Japanese equivalent (second row), the Chinese equivalent (third row), and the Pinyin representation, all in the same single message.

Using a combination of these features it is possible, for example, for a class in mainland China to experience the Gong interface using only Chinese, to read Chinese messages containing Simplified Chinese and/or Pinyin, with voice recordings made in Chinese. That is, there can be complete language immersion, with no English present.

3. Integration into Learning Management Systems (LMS)

The Gong system may be used as a stand-alone system, or as an integrated component of an LMS. This is illustrated as part of figure 6. A version of Gong for the popular LMS Moodle has been made freely available since July 2006. The majority of the Gong features discussed above are inherited by the LMS. That is, all courses in the LMS can use the features provided by Gong. For more detailed information on Gong integration please refer to [3].

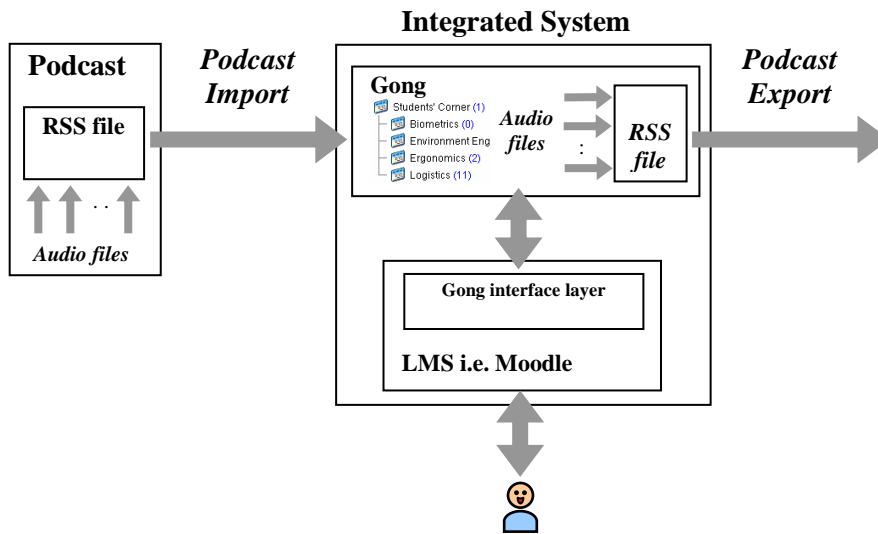


Figure 6. A high-level illustration of integration with another LMS, with podcasting import and export to be supported in the next release of Gong.

4. Podcasting

4.1 Introduction

Podcasting is a form of information sharing technology that has recently become popular. Although absolute measures of popularity are hard to obtain one interesting indicator comes from the Google Trend data service, which analyses search terms as an indicator of trends. The result for the search term 'podcasting' is shown in figure 7. This indicates that podcasting first became a major item of interest at the start of 2005, and that the level of interest has at least been sustained since then.

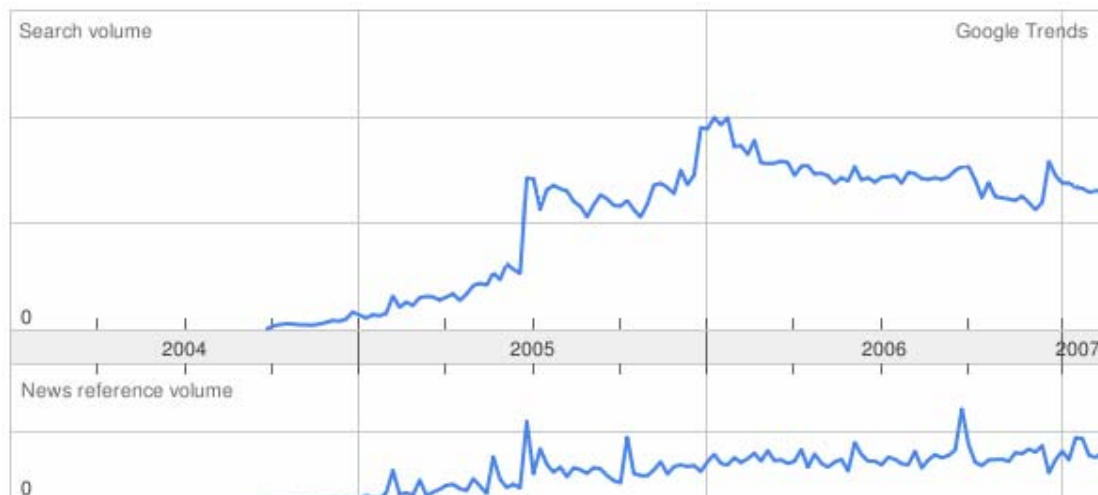


Figure 7. A chart showing the level of interest in podcasting as determined by the Google trend service [4].

From a technical viewpoint, podcasting is based around a file written in a particular format. This file is called an 'RSS' file, and it is synonymous with a podcast. The file

is placed on the Internet for programs called ‘podcast readers’ to download. The podcast file will typically point to other files, notably audio files which use the MP3 format. Podcast reader programs operate by downloading the RSS file, examining the file for links to other files, and then downloading those as well. Once they have been downloaded the files can be played by the user.

Podcast readers may be a program running on a user’s computer, or a web-based reading service. Examples of the former include the iTunes program[5] as well as the latest versions of most popular browsers, including Internet Explorer and Firefox. An example of the latter is the Google Reader service[6].

Podcasting technology was originally developed with the idea of portable access in mind. A typical scenario put forward by early proponents of the technology envisaged the podcast data being automatically transferred to the user’s portable device, such as an iPod. The text and audio recordings could then be experienced while the user was on the move. However, research has shown that the majority of podcasts are viewed only on the user’s local PC and are not commonly transferred to mobile devices.

The next version of Gong, version 6, will support the ability to export any Gong voice board as a podcast, and conversely to import any podcast into Gong as a voice board. These new features are briefly discussed.

4.2 The export of any voice board as a podcast

In the next release of Gong any group of audio recordings can simultaneously be a podcast. The user only needs to indicate that the voice board will also be published as a podcast, as illustrated in figure 8. The Gong system then automatically handles the related technical issues. Thereafter, all audio/text messages in the voice board can be picked up by any podcast reading system.

Any changes in the Gong voice board, such as newly added or edited messages, are automatically reflected in the Gong podcast. They will be presented to the end user when the user’s podcast reader updates their copy of the podcast. The frequency of this depends on the configuration of the podcast reader program, typically once a day.



Figure 8. Enabling a Gong voice board for podcasting

4.3 The import of a podcast into Gong as a voice board

The many thousands of podcast feeds on the Internet are a potentially invaluable source of learning material. Some podcasts are specifically created for the support of learning. Examples include <http://feeds.feedburner.com/voa>, which contains recent news articles from the Voice of America service read in English at a deliberately slower speed than normal, and <http://chinesepod.com/learnchinese/feed>, which contains many lessons for learning Putonghua. While such resources are useful by themselves, a far greater level of usefulness would arise if they could be integrated into a learning system in which users could repeatedly play, edit, annotate and discuss the material, and in the case of language learning, to mimic the pronunciation of the audio learning material.

With this in mind the next release of Gong has been extended so that any podcast can be imported into the Gong system. Essentially, the user only needs to enter the RSS file (that is, the source podcast). Thereafter, the system automatically downloads the podcast feed and all associated sound files, taking the entire feed into the Gong system. If new sounds are added to the podcast at a later date they are automatically added to the Gong board.

Once the podcast is entered into the Gong system it operates like a normal Gong voice board. For example, the topics discussed in the podcast can be commented on by students and staff, and spoken expressions from the podcast can be used by students as a basis for practicing their pronunciation. Furthermore, if the text provided in the podcast is the same as the speech recorded in the corresponding podcast sound file then the messages can be easily indexed by the Gong system and, for example, this can be used to provide examples of native speaker pronunciation in which individual words can be easily located and repeatedly played.

5. Use of Gong to date

More than 500 institutions and individuals have downloaded the Gong system since it was released free in July 2006. From our analysis of the information people need to enter before they can download Gong one observation is that two thirds of those downloading Gong intend to use it with the Moodle LMS, with one third intending to use Gong as a stand-alone system, as illustrated in figure 9.

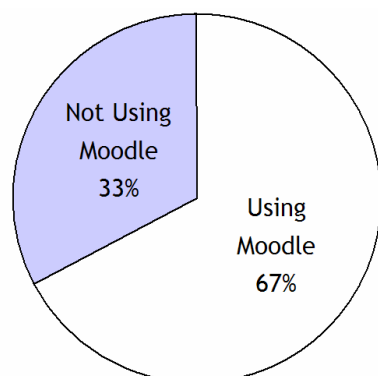


Figure 9. People who downloaded Gong for use with Moodle compared to those who download Gong for use as a stand-alone system.

6. Acknowledgements

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7. References

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