Abstract: This research project targets the internet as information source. CASSYS (Collaborative Keyword Assisted Search System) was developed to support web search beginners to find out suitable keywords for their search. We hypothesize that sharing knowledge about keywords used in the same learning community and the relation of each keyword will encourage web searchers’ reflective learning on their search strategies and domain knowledge. Image map visualized in JAVA applet is working together with Google API.

THEORETICAL BACKGROUND
Since the 1990’s, internet use in classrooms has greatly spread throughout Japan. Web pages have been used as a new information source following traditional printed, audio-visual and other materials. The technology and application of web-mining has been rapidly growing (Murata, 2001). However, no concrete method to instruct students how to search web sites more effectively has been established yet. Kasai (2001) analyzed 70 secondary school students’ (grade 10) search logs and protocol to see what kind of mistakes they made and difficulties they had during their web search process. A variety of incidents obstructing smooth web searching occurred during even short search sessions in the classroom, and the range of mistakes was broad, from easy technical mistakes to topic related conceptual errors.

Figure 1. Image of JAVA Applet
PROJECT OVERVIEW
Web search itself is a lonely task for anyone because he/she must face the PC screen all the time. Besides, a set of operation for web search consists of quick motions and never gives users time to stop and rethink about their search topics and strategies for the next steps. CASSYS enables learners to see the other community members’ keywords used in past sessions with a map-like image (see figure 1). The image shown in the JAVA applet presents a map of related keywords accumulated in a database attached to a web server. Web searchers can see by what keywords and how the other classmates are searching the web and if needed they can pick up other person’s keywords for their further steps. It is our hypothesis that sharing knowledge inside a learning community will help information seekers to reflect on their own search process and it will encourage them to think more deeply on topics and strategies for their future sessions.

SYSTEM DESCRIPTION
“Google” is one of the most popular web-search engines in Japan. We connected a database to a web server in order to pool keywords. When a searcher inputs keywords through the CASSYS menu, the keywords are sent through two different paths to Google and to the database (see figure 2). As search results are responded by Google, the used keywords stored in a database are visualized by our own program and shown as JAVA applet.

IMPLEMENTATION AND EVALUATION
CASSYS is to be examined in actual classrooms in a secondary school in Tokyo, Japan in early June 2003. All data will be analyzed after that and it will be presented at the site of ED-Media 2003.

REFERENCES