Web 2.0, as described in Wikipedia (http://en.wikipedia.org/wiki/Web_2), is considered as a collection of methods and concepts for the second generation of Internet-based Web services—such as social networking sites, Wikis, communication tools, and folksonomies—that emphasize online collaboration and sharing among users. In line with this trend, distance learning can be enhanced with a set of new technologies and concepts, both from the instructor and from the student perspectives. This article points out a few important directions that were concluded in a panel discussion of a recent international conference. We address these impacts from four perspectives in the following sections.

People Centric Learning
Learning technology considers human as the center of education. Yet, in traditional distance learning systems, users access the same Web site to use the same interface with the same contents. Relatively, this type of learning is more LMS (i.e., Learning Management System) centric. With the technologies in Web 2.0, a LMS can be designed as Plug-in. That is, students are able to design their own interfaces to LMS. The interface chosen by the students can be further integrated with other services, such as a student-centered program, where the students can subscribe to study groups, societies, and news groups. These school activities enable a new paradigm of social program, where students can meet in a virtual space. In Web 2.0, the supporting technologies include Really Simple Syndication (i.e., RSS). RSS contents can be managed by a program called feed readers. A user can subscribe to a feed by providing links (i.e., URLs). The feed reader can automatically access these links from time to time and find new updates from the link for the user. Thus, the use of RSS technology enables automatic notification of events, news, meetings, and so forth, in a distance learning program. In addition, RSS can be used to build dynamic learning objects. That is, as soon as there is an update to a particular learning subject, the information will be broadcast to interested users (i.e., students) automatically. Students who are interested in a special area of topics can design their personalized RSS feeds. Professors interested in a research topic can also subscribe to a RSS feed to receive timely information. In addition, the cascading style sheets (CSS) enables presentation styles to be implemented on different end devices. It is possible to use the technology to design a particular style for contents in one organization, or one group of students. CSS provides another interesting perspective of personalization. Conclusively, distance learning can be more people centric if RSS and CSS are used.
Curriculum and Concept Tags for Rediscovery

Both virtual and traditional universities provide curriculum for students to learn courses according to a particular order. The design of curriculum helps the students to learn in a smooth way. This concept can also be implemented within a course, so that elements of the course concepts are ordered according to a topology. In some cases, the topology can be implemented using a concept map. Whether it is the overall curriculum of a university or it is a concept map of a course, a distance learning system should support a searching mechanism for students to find interested materials. In order to make searching results more accurate (as contrasted with ordinary searching engines), there are two existing mechanisms. Distance learning standards, such as SCORM, provide metadata definitions (i.e., Learning Object Metadata, or LOM) with tag names and precise vocabularies to describe a particular content. On the other hand, classification of contents can be implemented by using collaboratively generated, open-ended labels, such as tags discussed in Web 2.0. Folksonomy is a description of such a technology. Folksonomies are developed in Internet-mediated social environments. Tags are designed by users. Learning objects designed by users can use folksonomy to describe the searching criteria. Therefore, searching for particular interests will be more accurate. In addition, folksonomy can be used as a mechanism to develop the Semantic Web, in which each Web page contains metadata to precisely describe the content. The construction of precise metadata is very important to ensure the precision of search. Thus, university curriculum and concepts used in a class should be carefully designed and supervised by educational professionals. On the other hand, students can create their own study experiences. These experiences can be represented in a concept map, with the supervision of an instructor. Thus, folksonomy facilitates students in organizing their experiences.

Self-Regulation and Self-Assessment

Self-regulation in distance learning can be achieved by using a Web-based interface to encourage students to design their own study plan and to follow that plan. It was proven that students in fact learn better at their own pace. Self-regulation usually is incorporated with self-assessment, which allows students to try online tests in order to know which portion of a course that they need to seek for remediation. Self-regulated learning should provide advanced interface to support self-schedule review, progress checking, and performance evaluation against other students. Self-assessment systems should provide instant feedback to students, with a possible extension to use an intelligent tutoring system to supervise learning. These systems can be implemented using a technology in Web 2.0, called AJAX (short-hand for Asynchronous JavaScript and XML). In an ordinary Web page, when a user requests an update (i.e., go to the next page or compute a result), the client browser sends a message to the server, which replies with a result. The traditional updating mechanism increases the waiting time of the user, and hence the usability and user-friendliness decrease. AJAX is an asynchronous technology that enables rich-client Web applications. Instead of waiting for the results from the Web server, AJAX exchanges small amounts of data with the server behind the scene. Therefore, the user does not need to follow the click-wait-and-refresh cycle. Partial screen update increases a Web page’s interactivity, speed, and usability. If a self-regulation and self-assessment system is implemented using AJAX, students do not need to wait for a long time before they know the hints, answers, and references of a test question. Instant feedback can be implemented as a rich-client Web application.

Collaborative Authoring and Discussion Group

Perhaps, the most important impact from Web 2.0 is due to the introduction of Blog and Wiki. A Blog is a user-generated Web site which has entries listed in a journal style. A Blog usually has a particular subject. Readers visiting a Blog are able to leave interactive comments. Blogs can
be used for collaborative learning. For instance, students can post study experiences and solutions to help each other. Blogs for joint project discussions or study groups can also be constructed. In addition, collaborative research projects between universities can have Blogs to exchange research results for joint publications. On the other hand, Wiki may use a similar underlying technology, but with a focus on collaborative publishing. A Wiki also allows its users to edit and add contents. A Wiki is a suitable platform for collaborative authoring, where instructors can design online distance learning materials together. Project reports and research papers can also be collaborated through Wiki. Wikipedia is a good example of collaborative authoring.

Web 2.0 is a collection of concepts with supporting technologies. There is no clear boundary between the conventional Web and Web 2.0, as most of the technologies used in Web 2.0 are not new. However, a few important issues in Web 2.0, including active information (i.e., through the use of RSS), metadata and tags (i.e., through the use of folksonomy), rich-client applications (i.e., using AJAX), and collaborative authoring (i.e., Blog and Wiki), make Web 2.0 a successful buzz word. In the past, distance learning systems and platforms can be implemented as stand alone software or as Web-based solutions. Distance Learning 2.x (as contrasted with traditional distance learning) can use technologies of Web 2.0 to build the next generation of learning systems for their users.