Podcasting in Academia: A New Knowledge Management Paradigm within Academic Settings

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ABSTRACT
Podcasting represents a new and exciting learning paradigm within an academic setting. Materials such conference reports, research manuscripts, and course lectures can be recorded as audio and video files and delivered to subscribing users automatically. A minimum skills and effort is requiring for involved parties to accomplish the knowledge transaction. The ease of use and seamless transaction between users enable more efficiency in resource consumption. Minimal time and effort is wasted for both knowledge distribution and acquisition. In addition, podcasting can be utilized in various types of knowledge management practices including, a collaborative and social networking activities. This paper provides a technological overview of podcasting, and examines the potential podcasting usage within educational settings, podcasting contributions to academia, and future podcasting research suggestions.

Categories and Subject Descriptors
H.1.2 User/Machine Systems

General Terms: Design, Management, Human factors

Keywords: Podcast, Knowledge Management, Information Foraging, Social Networking.

1. INTRODUCTION
The advent of the Internet has presented new ways for educators to improve collaboration among their peers. The Internet offers a means to create, share and distribute knowledge between relevant stakeholders. Artifacts such as Wiki, blogging, Intelligent online discussion boards, and new generations of collaboration and learning management software such as Sakai enable educators to improve their academic collaboration and findings. Pedagogic resources such as books, articles, images, and lectures can be captured, digitized, stored and distributed via the Internet. The Internet enables users to consume these resources whenever they wish. However, the process of distributing resources to various relevance parties still left much to be desired. Students and instructors are still behaving as systematic information forager. One must be able to locate desired resources through a series of searches. For example, a student may require multiple visits to an instructor’s homepage to retrieve a weekly assignment, which may not be promptly updated. Once the student reaches the site, he/she has to navigate through a series of pages to find the files that he/she wants. Then, the student would spend a considerable time waiting for the files to be downloaded to his/her PC. These processes require much resource from individuals to search, locate, and retrieve desired information. Hence an information retrieval mechanism such as podcasting provides a new approach in file distribution and content management. Podcasting can reduce search costs and efforts, thus lead to a greater collaboration among relevant stakeholders. This paper will examine the following issues, i) a technological background of podcasting, ii) potential podcasting usage within educational settings, iii) podcasting contributions to academia and iv) future podcasting research suggestions.

2. OVERVIEW OF PODCASTING TECHNOLOGY
Geoghegan and Klass [3] defined podcast as “audio content available on the Internet that can be automatically delivered to your computer or MP3 player” (pg.5). In addition, textual, pictorial and video content can also be delivered via the same methodology. These types of content have already been available to users via the Internet. However, a subscription model, where users receive content feeds regularly is fairly new. [2] (2005) emphasizes “What’s new about podcasting is the ease of publication, ease of subscription, and ease of use across multiple environments, typically over computer speakers, over a car stereo, and over headphones.” This ease of use relieves users from time-consuming information foraging activities such as searching, updating and downloading academic content. A problem domain involving educators and their quest for knowledge is eloquently stated by Pirolli and Card [5]: “Academic researchers are facing the recurrent problems of finding task-relevant information. Information flows into the environment to be represented in different types of external media, such as books, manuscripts, or on-line documents. In addition, the different kinds of sources will be distributed in the task environment in different ways. Some will be more prevalent, or less effortful to access, than others. Conceptually, the optimal information forager is one that best solves the problem of maximizing the rate of valuable information gained per unit cost, given the constraints of the task environment. These constraints include the profitability of different sources, and the costs of finding and accessing them.”
The popularization of Podcasting is stemming from emerging trends in portable information technology such as iPod and Smartphones. There have been more than 27 million iPods sold since its introduction in 2001. The iPod has captured approximately 70% of all the sales MP3 portable players. Users can easily download their favorite audio/video programs from popular content management and distribution software such as iTunes. iTunes acts as a content aggregator as well as media player, where users can download desired content and synchronize it with their iPod. However, Podcasting is not only limited to iPod, but can in fact be used with other portable MP3 devices as well as traditional computers. Podcasting focuses on providing a universal centralized content distribution to its subscribers through a XML-based format called Really Simple Syndication (RSS).

RSS formats provide predefined web content or summaries of web content together with links to the full versions of the content, and other meta-data. This information is delivered as a XML file called RSS feed allowing Internet users to subscribe to websites that provide a media feed. Users need to subscribe to their desired RSS feed through media aggregator software (i.e. podcatcher) such as iTunes. Then, whenever there are new updates on the subscribed sites, the Podcatcher software automatically downloads the predefined types of media such as text, picture, audio and video to the user’s computer. Figure 1 shows an example of academic podcasting (IS362 Podcasts) via iTunes, conducting at Claremont Graduate University.

3. PODCASTING USAGES WITHIN ACADEMIC SETTINGS

IT artifacts such as Wiki, Intelligent discussion forum, and WebCT have long been utilized by academic stakeholders [6] Instructors can post lectures and assignments on their homepages, while students can search through various websites to acquire relevant knowledge. This represents a traditional paradigm of knowledge distribution and discovery. However, to reach a goal, there must be successful communication line connecting the involved parties [9]. When multiple academic parties engage in a series of knowledge transactions, an asynchronous communication could easily occur. For example, an instructor may not be able to update her website promptly, which leads her students to continuously check on the non-update website: a student who misses her class can retrieve the lecture PowerPoint slides, but miss out on important topics that came up during class discussion.

Some of the problems in connecting, distributing and managing academic knowledge can be lessened by employing content management software such as iTunes. For example, academic materials such as research manuscripts, class lectures and assignments can be easily distributed via RSS subscription. In addition, enrich media such as audio and video can be captured during class sessions and conferences. These files then can be processed and uploaded to online repositories such as the instructor’s homepage tagged with RSS. Once the files are available as RSS tagged items, they can be automatically distributed to subscribed users whenever the site is updated.

Students can use iTunes as an interface to manage, listen, read and view the distributed materials. In addition, users can transfer desired files to any portable MP3 players. The ability to automatically retrieve, manage and transfer files between parties greatly reduces the transaction cost. A student can store and manage subscribed files without much effort. In addition, she can enjoy listening and viewing her class materials at her leisure.

The ubiquitous learning through iPod and podcasting has been implemented at Duke University. In August 2004, all first-year students were given a 20GB iPod device equipped with voice recorder peripheral. Academic usages at Duke were divided into five categories 1) course content and dissemination tool, 2) classroom recording tool, 3) field recording tool, 4) study support tool, and 5) file storage and transfer. This is just one of the current examples of iPod and Podcasting utilization in academic setting. Further details can be found in a published report titled “Duke University iPod First Year Experience Final Evaluation Report” [10].
4. PODCASTING’S POTENTIAL CONTRIBUTIONS TO ACADEMIA

4.1 Podcasting and Knowledge Management

The possibility of using podcasting in knowledge management is limitless. The core of academic podcasting is content management system; where academic materials are automatically distributed to subscribed users. This knowledge distribution model represents an information push approach where transaction occurs with minimal efforts and resources [7]. For example, students or researchers can subscribe for a RSS feed from interested academic websites. Then requested materials such as voice lectures, research papers, and conference presentations can be distributed automatically as soon as the knowledge creator updates their sites. Once the materials were distributed to user’s computer, the user could then investigate the value of information received. Since the subscription model offer users to aggregate their information automatically, ones only need to investigate the specific pool of information and choose only whichever files are pertinent to them.

Podcasting consumer shift in behaviors is showing similarity to information forager, where users enjoy information aggregation through centralized repository. Thus, podcasts provide easy-to-use, time-saving and minimal searching effort technology for users without overwhelming irrelevance knowledge. This Knowledge podcasts are not only easy to distribute and store, but also easy to share among each others. The information store in portable MP3 players can easily be shared between players. Hence, podcasting represents useful knowledge management artifacts where knowledge can be easily distribute, store and share between academic parties [1].

4.2 Collaborative and Social Networking

Mechanism

Academic podcasting provides an opportunity for academics to improve social networking and research collaboration. Faculty, staff, and students can thrive upon possible innovations that podcasting offers. Innovative and exciting pedagogy such as class discussion, conference announcement and on-campus activities can be recorded and distributed as podcasts. These possible innovations could lead to a network effect: the more parties involve the more prevalent the technology becomes [8]. For example, a graduate student listens to an on campus digital concert podcast; a short news announcement is podcast to school’s main subscribers about upcoming events; a conference was digitally recorded and distributed to researchers at other universities across the world. These scenarios could cause an intentional or unintentional collaboration and social networking. Information can spread by word-of-mouth regarding innovative podcasts. A technological buzz could lead to an increase in social participation such as digital concert attendance. Overall, podcasting provides an innovative and exciting way for people to improve communication, collaboration and social networking.

4.3 User Acceptance

User acceptance of new technology remains one of the most puzzling topics in the field of information science [4]. The podcasting model is still relatively new. Podcasting provides users with ease of use through a subscription model, where users subscribe to RSS ready sites then the content feed would automatically be distributed to their computers. Then, users decide to transfer the files to a portable MP3 player such as iPod. One of the main reason that iPod has garnered more than 70% of the MP3 market is because the relative ease of use as well as a seamless synchronization with a content management system such as iTunes. This partnership between IT device and application offers a compelling combination of simplicity and ease of use, which encourages users to utilize it as the main medium to carry their academic files. In addition, a successful podcast transaction requires involved users to use familiar tools such as personal computers (PCs or Macintosh), content management software (iTunes) and portable MP3 player (iPod).

5. PODCASTING RESEARCH OPPORTUNITIES

The concepts of effective content management system and efficiency in acquiring and redistributing resources through podcasting offer various research opportunities. Issues such as podcasting and knowledge management, lifelong learning, and social networking and collaboration through podcasting are some of the topics that researchers can articulate. These subjects are range from individual or multiple users, organizations, and society as a whole. Table 1 contains some of the prevalent research questions involving podcasting pertinent to research opportunities in the field of Information Science. These questions provide a first-step for researchers to investigate the fundamental issues involving new and innovative learning pedagogy such as academic podcasting. In addition, researchers can view academic podcasting phenomenon upon an iterative cycle of designing the artifacts. Studying the design of academic podcast pedagogy and taxonomy would provide an opportunity for academia to reduce transaction cost between relevant parties.

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6. Conclusions

Podcasting represents an ongoing social phenomenal and new learning paradigm. The idea of web-based intellectual broadcasting has been implemented since the advent of the Internet. However, podcasting offers an easy way for users to create, distribute and manage the class and research materials. Podcasting’s multimedia attributes and the popularization of converged artifacts such as iPod offers potential academic value to its users. In the long run,
podcasting has a potential to be embraced not only by consumers and academic users, but also a societal entities such as communities and government agencies. Podcasting research interests could range from individual, corporate to political podcasting. The future articulation process offer researchers the opportunity to further understand the design of the IT artifacts that users can both enjoy and adapt to with ease. Ultimately, academic Podcasting should usher in new learning paradigm through a series of design iteration, innovation and collaboration among the participants in the academic world.

7. ACKNOWLEDGMENTS
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8. REFERENCES